THREE YOUNG CRUSOES

by

William Alphonso Murrill

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Three Young Crusoes

Their Life and Adventures on an Island in the West Indies

W. A. Murrill

BY

WILLIAM ALPHONSO MURRILL, A.M., PH.D

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PREFACE

This book was written for the entertainment and instruction of children between twelve and eighteen years of age, the underlying idea being that the student of nature need never be lonely. Forced to lead the simple life on a deserted island far from friends, books, and other advantages, the three Crusoes found that nature supplied them not only with bodily, but also with mental wants.

While the characters, the story, and the setting are fictitious, the natural history is entirely reliable, and the reader enjoys the rare privilege of having the nature treasures of many different localities brought together into a rather limited area. On this account, visitors to any part of the West Indies may find the book helpful.

It may be added that the opinion of experts is divided regarding the origin of the monkey used in this story, some claiming that he was native to the island and others contending that he was introduced through human agency. The author is inclined to lean toward the latter theory.

William A. Murrill

August 5, 1918

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FIG. 1. The sun was shining and the sea was calm. Children played about the lifeboats with no thought of storm or disaster.

THREE YOUNG CRUSOES

Their Life and Adventures on an Island in the West Indies

CHAPTER I

Saved from Shipwreck

William was awakened by the sun shining full in his face. Henry and Edna, worn out by the ceaseless pounding of the waves, were still asleep in the bottom of the lifeboat. There was the supply of hardtack and there stood the precious keg of water, now half empty. Nothing was visible on the vast stretch of ocean; not a cloud appeared in the sky to shield them from the burning sun. The waves were still rough from the terrible storm—but why was the boat so still? William turned his head and saw to his amazement that the forward end of the boat was lying firm on a sandy beach!

"Wake up, Henry! Wake up, Edna! We're saved! Look at the land!" The two children groaned, rubbed their eyes, and struggled slowly to

their feet as though they heard only in a dream. But the land was no dream; beyond the sandy beach were tall mountains that did not fade away as they gazed at them, while in their hearts was a deep feeling of gratitude for their delivery from the cruel ocean.

They jumped from the boat to the sandy shore and danced up and down with delight. It was so good to feel the earth beneath their feet once more and to straighten out their legs after being cramped up so long in the boat. Then they thought of the biscuits and water; so the two boys took them from the boat and put them under the shade of a big rock far up on the beach. There was nothing else to move. Edna had her knitting bag on her arm, with manicure and vanity sets, pins, needles and thread, a pair of scissors, a thimble, and a comb. The boys had knives, pocket-combs, and pencils; while Henry had also a note-book and watch and William had a ball of twine and some fishhooks, a box of colored pencils, and a purse with a few silver and copper coins. Little good would the money do him now.

"Let's go up and take a look at the land," said Henry; so they crossed the strip of beach and climbed the steep bank to get a view. Imagine their astonishment when they saw nothing but blackened trunks

of trees and a thick layer of ashes covering the ground everywhere. Not a house was in sight—not a leaf or a blade of grass—no sign of anything living as far as the eye could reach on the broad plain that stretched from the seashore to the distant mountains.

"What does it all mean?" said Edna.

"I don't know," answered William.

"Perhaps these are volcanic ashes," said Henry, "and there has been an eruption like that from Vesuvius which destroyed Pompeii and Herculaneum. It says in my history that the fiery ashes covered everything for miles around and did much more harm than the lava."

"Then you think the trees and grass were all burned up by the ashes?" said Edna.

"Yes," said Henry, "and then a big rain put the fire out and beat the ashes down the way we see them. There must have been ashes on the beach, too, but the waves washed them away before we landed."

"Look at our boat!" cried William. They turned suddenly and saw the lifeboat drifting slowly out to sea with the tide. The last tie that bound them to home, friends, and country was broken.

"Well, it was too big for us to handle and I don't

know what good it would have done us, anyway," remarked the philosophical Henry.

And Edna said, partly to herself and partly aloud, "I was thinking what would have happened to us if William hadn't waked up in time."

CHAPTER II

Exploring the Island

"It's no use to go any farther in that direction," said Henry, "but suppose we go along the coast and see what we can find. Edna can stay here in the shade of the rock by the bread and water and we can come back in two hours. It is now ten by my watch and we can go straight ahead for an hour, leaving an hour to get back in."

"Please don't leave me here alone," Edna begged. "Let's all go together; I'm a good walker." So they set out together in the hot sun along the sandy beach, Edna's shapely little figure keeping abreast of the two sturdy boys at her side, and the three carrying all their present earthly possessions except the biscuits and keg of water.

Henry was fourteen, with light hair and eyes and a rather quick, nervous manner. Like other New York boys, he had been well trained at school and had learned many things by keeping his eyes and ears open and by reading books, magazines, and the daily papers. Having been born and reared in the big city, he naturally assumed the leadership.

William was Henry's age, but entirely different in

complexion and manner. His hair was brown and wavy and his eyes almost black. In movement, he was rather slow and deliberate. Life on a Virginia farm had trained him well in everything a country boy should know, but the country and village schools had not taught him as many things as Henry knew.

Edna was thirteen, with golden hair and eyes of the deepest blue. She was slightly under size for her age, so that the two boys seemed older than they really were by comparison. All her life previous to this fateful voyage had been spent in a Virginia town, where she learned something about books and a great deal about housekeeping and the care of babies.

The first thing of interest they came upon was the remains of a boat-landing. The upright supports had been burned to the surface of the water and the bottom of a boat, all that was left of it, was lying partly buried in the sand. A wide path led from the landing to the plain above. Evidently this had belonged to an establishment of considerable importance, probably a large farm or a small village.

A short distance beyond, a pretty little river joined the ocean, with broad meadows stretching out on each side of it. The banks were steep and the charred remains of a bridge showed that this

road had been travelled before. "How shall we get across?" said Edna.

"That's simple," remarked William. "We will wade and carry you between us on a pack-saddle." So the boys pulled off their shoes and socks, rolled up their trousers, and clasped their hands and wrists together so that they made a very comfortable seat for Edna. In the deepest part, she had to stick her feet straight out in front to keep from getting them wet. While crossing, she took some of the water up in her hand and tasted it, but it was so full of ashes that she could not think of drinking it.

The sight of water and her failure to get a drink made Edna at once very thirsty. The boys tried to get the idea out of her mind, but the more they argued the hotter the sun got and the drier the sand. Indeed, the boys would not have objected to a cool drink themselves. The three brave little explorers sat down in the shade of a rock and talked it over. If they turned back now, all their trouble would have been for nothing. Still, if the river water was bad, they could not hope to find a spring that wasn't full of ashes too, and the farther they went the thirstier they would get.

"Look at those funny round poles all bent over." William pointed to a little sandy hillock nearby and

he and Henry went to examine the "poles." They proved to be the trunks of cocoanut trees almost destroyed by fire. The beautiful, feathery leaves at the top had been entirely destroyed and the thick, fibrous husks on the ripe nuts had been burned away, but the unripe nuts, in their heavy green rinds, had hardly been touched. Henry had read of drinking the milk of a half-ripe cocoanut instead of water, so he and William got busy at once with their knives, whittling away at the small end to get at the hollow inside where the milk was.

"Want a drink of water, Edna?" She jumped up and came running, although she feared the boys were only teasing her. It proved to be excellent; a little sweetish and unusual, but very good and surprisingly cool. She drank until she could drink no more, while the boys watched her with pleasure. William was especially pleased because he had found the trees. After they got all the water they wanted, the boys broke open some of the ripe nuts by throwing them against the rocks and cut out a lot of the meat, which they munched as they continued their journey. When they came back that way, they planned to carry all the nuts they could to the big rock where they had left the hardtack and water.

Fig. 2. Cocoanut palms. The nuts are clustered near the top.

It was not long before the shore line made a sharp curve inward and they found themselves on the edge of a circular pool of deep-blue water, which went round and round like a whirlpool. It was very warm and seemed very deep and queer, being connected with the ocean by only a narrow opening. Edna said it looked like a big tub of bluing water; and Henry thought it would be fine to bathe in if it were not so scary looking.

After this the walking was easy and without detours until they came to the first line of foothills stretching from the mountains toward the sea. Here was a big surprise. Instead of ashes, they found dark-colored lava, which had run down the mountain side and overflowed everything until it reached the water and hardened. The surface was wrinkled and cracked and looked somewhat like old tar. Large rocks and charred trunks of trees had been carried along in the heavy, slow-moving stream, from which wisps of smoke still curled. The surface was hard, at least near the water, but it was some time before the children could summon enough courage to walk over it. The idea of sinking into a mass of molten lava was too horrible to think about. Here and there, they had to jump over deep cracks from which came smoke and the smell of sul-

phur. Henry compared them to the dangerous crevasses in a glacier, and asked William whether he would rather be burned alive or frozen to death.

It was a great relief to leave the lava stream behind and walk on the sandy beach once more. They went along at a merry pace for some time and then Henry looked at his watch and found that it was much later than he thought. After another conference, they decided to go back when they had explored the edge of the mountain that came down to the shore in full view ahead of them.

A Great Discovery

The mountain proved to be farther away than it seemed and they were all tired and hungry when they reached it. The side facing them was found to be covered with lava, which they had to climb over to reach the top of the spur jutting out into the ocean, but there was no lava on the top. A large, gnarled tree-trunk stood there, casting a pleasant shade. Here they sat down and rested and looked long and eagerly in every direction, but saw nothing that gave them any hope. They would rest a little while longer and then begin the tiresome journey back to the big rock.

William put his hand up to his ear and listened

intently. Was it the waves pounding on the beach? No, the beach was unusually quiet. It sounded like —it must be—a waterfall! And, still, nothing but the forbidding sides of the steep mountains appeared to be ahead of them, with the ocean curving out of sight at their base. It seemed strange; he must investigate. "Will you go with me or shall I go alone?" he said.

"We will all stick together," they replied.

Down the other side of the ridge they went, stumbling more than once, but not stopping until they came to the bank of a little stream about the size of a trout-brook, which had worn its way through the rocky mountain wall and formed a deep, winding gorge. The sound of the waterfall was very distinct now and they had only to follow the bank of the stream through the gorge to bring it into view. The volume of water was not great, but it fell from a considerable height in three stages and spread out near the bottom like a bridal veil. On the rocky banks at the sides and behind the waterfall were quantities of delicate ferns, continually wet with spray; while in the pool below fish were frequently seen darting up at insects floating on the surface.

The weary travellers sat down on a rock and reveled in the sight. Here was cool shade and sweet,

FIG. 3. The waterfall.

sparkling water, and real, living things. What a contrast to the rest of the island they had seen, where everything was dead and covered with ashes or lava! After sitting here until rested they noticed a broad, rough trail leading up the bank past the waterfall and decided to follow it. On reaching the top, a wonderful sight met their eyes! Spread out before them was a beautiful little valley, with trees and flowers and a house—but it will take a whole chapter to describe what they saw.

CHAPTER III

Happy Valley

The little valley was about half a mile wide and nearly circular in shape, with a rim of steep rocks hemming it in on the front and sides, while the rugged face of the mountain, covered with a splendid forest, loomed up almost perpendicular behind it. Along the stream, which tumbled in many small cascades from the mountain wall and rested on the west side of the valley for its final leap to the ocean, the forest had been thinned out and the underbrush cut away to form a beautiful grove of various interesting trees, all in full foliage. At the edge of this grove, almost at the center of the valley, stood the house, while adjoining it on the east was a large garden and beyond it several cultivated fields.

The valley was really one of the old craters of the volcano, which accounted for its circular shape and the wall of rocks around it, through which the stream had worn its way after thousands of years. It was this rim of old lava which had turned aside the stream of fresh lava and saved the valley from destruction; while a peculiar suction of air through the

gorge and up the mountain side, somewhat as through a chimney, had prevented the fiery ashes from settling on this enchanted spot.

The house was very peculiar, both in shape and

Fig. 4. A Cuban house built for air and coolness, with large thatched roof and clay floor. The trees are mangoes.

appearance. The widely projecting roof was thatched with a thick covering of dried palm leaves and stood up several feet above the rest of the house

so as to let the air circulate and keep the inside cool. The sides were boarded up with the broad bases of palm leaves put on up and down like shingles, while a deep ditch surrounded the walls on all sides to carry off the rain. The open front door showed a

Fig. 5. The kitchen stove, built of palm logs and covered with clay, on which charcoal fires were kindled.

wide hall running straight through to the rear, while the rest of the space was divided into four rooms by partitions about seven feet high, which were little more than screens. There were no floors, ex-

cept of hardened clay, and there was nothing that would ordinarily be called attractive; but to the tired and homeless little wanderers it seemed like a paradise.

Not a human being was discovered anywhere, without or within, although they knocked loudly and shouted at the top of their voices. It evidently did not occur to them that the owners of the house might be dangerous savages. Beyond the house, they found the kitchen, with its peculiar earthen stove and its rough walls hung with seeds and bunches of vegetables. A small bedroom adjoined the kitchen, evidently intended for the cook. There was no diningroom, but between the house and the kitchen, under a royal palm, there was a large table with benches fastened in the ground at its sides.

"I wonder where the spring is," said Edna. Then, for the first time, they noticed the thick, thorny hedge of spurge which separated the house from the garden and grove, making a large, square yard. In the corner of the yard near the grove, shaded by a clump of cocoanut palms, they found the spring, with a cosy bench beside it, and the boys made Edna sit down until she had drunk all the water she could.

"It begins to look as if we owned the place," said Henry. "I guess the people tried to escape and got burned up the way they did at Pompeii."

"I move we locate here and try our hand at farming for awhile," said William.

"Second the motion," said Edna.

"Motion carried," said Henry.

Fig. 6. A pretty little Cuban home. Who would not love to live in a home like this?

Just then Edna screamed and pointed to a clump of foliage plants nearby where something was moving. The boys scarcely had time to get frightened before a little negro boy about four years old, with kinky hair and shining eyes, parted the foliage and came toward them smiling, holding a half-eaten banana in one hand.

"Hello, Snowball," volunteered William.

"Lo," replied the little fellow bravely but with rather unsteady voice. So they called him "Snowball" on ordinary occasions, but when special weight or dignity was required they lengthened it to "Halleluiah Snowball."

When Edna recovered from her fright, she blushed a little and, taking her red sash from her waist, tied it around Snowball with a big bow on one side, making him look like a bronze cupid or a little black angel without his wings. Snowball was greatly delighted with the sash and offered Edna his banana, the only thing he had, in exchange. Then he led the way to a clump of trees in the corner of the garden, where they found several ripe bunches of delicious bananas, which they enjoyed immensely. Nearby was an orange tree full of yellow fruit and there was plenty of it also on the ground. Oranges, bananas, cocoanut meat, and pure spring water made

FIG. 7. Snowball.

quite a contrast to what they had been eating on the boat, so they decided not to go back for the hardtack just yet.

After Snowball had thoroughly gorged himself, he set out toward the kitchen and, climbing into the bed there, soon fell asleep. This set the others to thinking, so they returned to the house and divided out the rooms. Edna chose one looking out on the garden, because she loved to see the sun in her window in the morning; while the boys took the two rooms on the west side looking out on the grove. The remaining room was to be a sittingroom for them all. The furniture in the various rooms was much the same: a wooden cot in the corner covered with a cushion of matting filled with sugarcane leaves; a small table made of a section sawed from a log and fitted to the top of a post; and the trunk of a small tree placed upright in the ground, with several small forks to hang things on.

Edna hung up her knitting-bag, took off her hat, and combed her hair. She was afraid to look in her looking-glass after all she had been through that day. Besides, she was tired and sleepy and wanted only to rest. The bed felt more comfortable than it looked. After all, it was so much better than tossing about the ocean in a hard lifeboat—and it

was so wonderful to find this pretty little valley and the house just when things had become so discouraging—and the oranges and bananas were not so bad for a dinner—and the spring was just lovely—and—

What was that noise at her door! Edna sat up suddenly in bed and listened. The first rays of the morning sun were streaming through her window.

"Lo," came a soft childish voice, while little hands fumbled at the bamboo fastenings.

"That you, Snowball?"

"Lo," he answered. In he came, holding one end of his sash in his hand and dragging the other along the dirt floor. He had evidently got into trouble when he tried to dress himself, so he sought Edna as the quickest solution. After both were dressed to their mutual satisfaction, Snowball led the way to the kitchen again and began tugging at a closet which he could not open and which they had overlooked on their previous visit. As soon as it was opened, he disappeared within and came out chewing the end of a stick of sugarcane.

This closet solved a problem which Edna had been turning over in her mind since she passed the table under the royal palm—namely, breakfast. Oranges and bananas were good, but the inner man

seemed to call now for something a little more substantial. Among many things that were strange to her, she selected some fresh tomatoes, potatoes recently dug in the garden, a piece of bacon, a jar of coarse corn meal, and a tin can containing roasted coffee beans. The breakfast menu would be fried tomatoes, corn cakes, potato cakes, breakfast bacon, and black coffee. If anybody wanted fruit, there was plenty on the trees.

The boys were coming up from a splash in the brook and felt much refreshed. "How about breakfast, Edna?" remarked Henry. "More oranges and bananas, or shall we go for the hardtack?"

"I have a big surprise for you," replied Edna, "only I don't know what to do about a fire."

"After all the fire we passed over yesterday!" said William. "I tell you what I'll do. I'll run back across the ridge and get some fire from that lava."

So he took a pot of charcoal from the kitchen and soon returned with it all aglow, ready for the serious business of getting breakfast. Henry sliced the bacon while Edna peeled the potatoes and William got the pots of water to boiling. Too many cooks did not spoil the broth this time. As they ate their first breakfast out under the palm tree, thoroughly

enjoying every bite, Henry said, "What would our friends think if they could see us now?"

To which Edna added, "And so different from yesterday morning! I know we ought to be thankful." William was too full for utterance, but he looked thankful.

CHAPTER IV

The Garden

"Food, clothes, shelter, and entertainment. We have the shelter; our clothes will last a while longer if we are careful; and the entertainment can wait. I guess food comes first." No one disputing Henry's conclusion, they all went to take stock of what might be growing in the garden. The supply in the kitchen was certainly not very ample, considering the number of mouths there were to feed, and something must be done before it was exhausted.

The garden was different from anything they had ever seen before. Surrounding it was a pinguin hedge, which no animal would care to break through because of its long, saw-toothed leaves; and, in one corner, where the ground was rocky, there was a clump of very vicious looking cacti armed with long spines. The pretty cactus fruit was a redeeming feature, however, and Henry could not resist the temptation to show the others how the Burbank fruits, shipped from California to the New York markets, were peeled to avoid the nests of aggravating little bristles in their skin. They all tasted

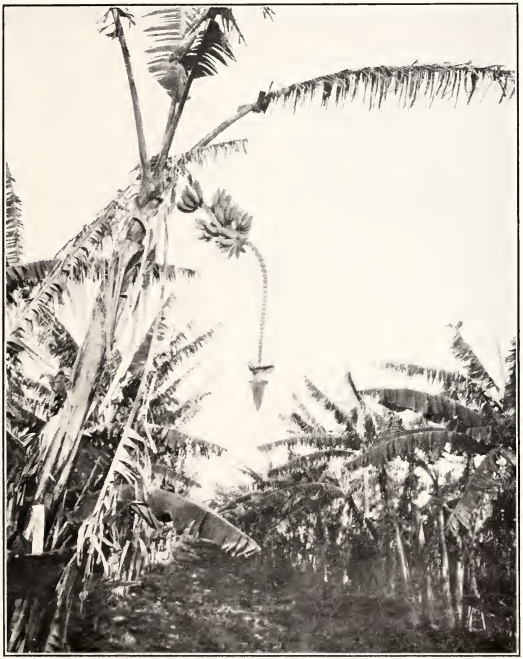


Fig. 8. Rows of banana trees.

the fruit after it was properly peeled and pronounced it excellent. Edna could not help thinking, however, of Snowball and his love for bright colors: he had such a way of finding things.

Banana trees were plentiful, filling two entire rows on one side of the garden. The trees were of different sizes and there were several varieties of fruits, all different from the large yellow kind shipped to New York and Norfolk. Many of them were plantains, a variety used for baking, but the children did not recognize them at that time. The fig banana attracted them because of its peculiar shape and small size, and a red variety because of its color.

"I do believe this is popcorn," said Edna. "If it is, we can have great times popping it for supper." It was several weeks before it got fully ripe, but Edna's guess proved to be correct.

"Then we can save some for seed and plant it over and over again," said William. Beans had been planted in the hills of corn and also by themselves in several rows. These, with the potatoes, tomatoes, and red peppers, made the children feel almost at home; but they came next to a row of shapely little trees with tomatoes on them!—and after that they were prepared for anything.

Rows of gherkins, chayotes, arrowroot, and sev-

eral other vegetables peculiar to the tropics brought them to the other side of the enclosure, where gourd vines were planted next to the hedge. The gourds were of different sizes and shapes and exceedingly

Fig. 9. A village of huts in Cuba. The calabash trees have been rather badly handled.

useful about the kitchen. The towel gourd, or loofah, was shaped like a large cucumber and, when ripe, contained a strong, fibrous network resembling

a sponge. The largest gourds were fine for water, although not so good for this purpose as the big, rounded fruits of the calabash tree.

Working the Garden

William found working in the garden no easier here than at home and Henry thought it must be much harder because the weeds naturally grew faster. They went at it bravely, however, and Edna would come out every now and then and encourage them, while Snowball would bring them water in a cocoanut gourd. At first, the blisters grew as fast as the weeds, and their backs ached at night like the rheumatism; but such small things didn't matter very long.

Besides the weeds and grass, there were potatoes to dig, beans to stick, and various things to pick and carry in. The banana trees never had but one bunch on them, so the boys got accustomed to cutting them down just before the fruit was ripe and hanging a cluster on the royal palm near the table, where they could pull off a banana whenever they felt like it. Edna was so fond of bananas that William kept a nice bunch hanging by her bed all the time.

Irrigation

"Don't you think the garden's looking pretty dry, Henry?"

"Yes, I do, William, and I was just thinking how they do in California. They irrigate out there, and it would be just as simple as rolling off a log for us to do it here. See that pile of big bamboo poles? We could use them to pipe the water from the stream up there in the woods and it would have almost power enough to turn a mill."

"Are you sure they are hollow?" said William. "I know elder always has partitions in it. I think it would be better to split off a little strip along the top, anyhow, so that we could clean the leaves and dirt out of the pipes."

When Edna learned of their new scheme, she said, "Then I can have water right here at the house for everything except drinking and cooking and you can wash the vegetables before you bring them in. I think it will be fine."

The next day, the boys ran their pipe line along the slope of the hill from a pretty pool in the woods to the corner of the yard adjoining the garden. They did find partitions in the bamboo and had to knock them out, but the scheme worked to perfection, and everybody celebrated when the first water came

through. To Snowball, it was a revelation—nothing less than white man's magic—and he cast his eyes up to the sky to see if they were going to make it rain next.

"Now we can snap our fingers at dry seasons so far as the garden is concerned," said Henry. "As to the fields, we'll see about them later."

CHAPTER V

Going Fishing

"Let's go fishing," said William. "We've worked hard and I think we deserve a little fun. Besides, I'm hungry for meat, even if it is just fish. I remember when I used to go after hornyheads in Virginia and I can almost hear their bones cracking."

"Where will we get the hooks?" asked Henry.

"Don't you remember those hooks and the ball of cord I showed you on the boat," replied William. "I have them now in my room. I hardly ever go anywhere without a few fishhooks in my pocket."

It was scarcely ten minutes before the two boys were standing by the pool below the waterfall where they had seen the fish jumping up, with stick poles in their hands waiting eagerly for a bite. And the fish were not slow. In half an hour they had quite a string, some of them over eight inches long.

"We forgot to tell Edna where we were going and I bet she'll be worried," said William. "We've got enough for one good meal, anyhow." So they reluctantly wound up their lines and started home.

"Bad luck to leave when the fish are biting good,"

remarked Henry, as they climbed the rough steps past the waterfall.

Sure enough, Edna was beginning to worry, but she forgot all about it when she saw the fish; while Snowball danced with glee. Some of them were in the pan with a generous slice of bacon before one could turn round very many times, and the main dish on the supper table under the palm tree was principally fish.

Fig. 10. The little stream below the gorge.

William dreamed of fishing for mullet that night and once he jerked so hard that he almost jerked himself out of bed. When he awoke next morning, his mind was still on fishing. But Henry anticipated him. "Let's go down to the ocean," he said, "and catch some real fish like they catch at Coney Island."

Real Fishing

Edna said she was not afraid, with Snowball, so they planned to be gone all morning. Following the bank of the little stream, they soon reached the ocean, not far beyond the gorge. To their surprise, a little boat-landing had been built at the mouth of the stream and a small log canoe lay beside it. The space for a larger boat on the other side was empty. Undoubtedly, the owners of the house had tried to escape in this boat and had been overtaken on the water by the rain of fiery ashes.

"No more boats for me just yet," said William, as Henry began to untie the canoe. "You can go out and fish from the canoe and I'll fish from the landing." So it was agreed, and soon both boys began to get encouraging results. Henry pulled in a four-pounder and William responded with a six-pounder. It was so new for the country boy, accustomed to catching hornyheads, that he did not

notice Henry again until he heard him shout and saw the canoe going round and round in circles.

Then Henry paddled to the shore, greatly excited, and exclaimed, "I had a whale of a fish on my hook

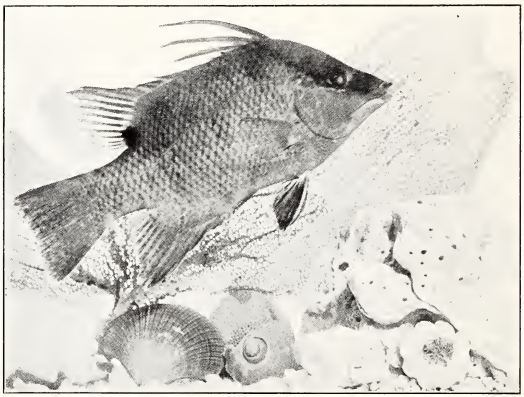


Fig. 11. The hog fish.

and was just pulling him in when the line broke! We could have lived on that fish for a week!"

"I saw you pulling him in!" said William.

It was easy to catch all the fish they wanted from the landing because the mouth of the stream at-

tracted them, and they were back home an hour or more before they were expected, leaving plenty of time to prepare some of the fish for dinner. That was a real meal. There was no need to go slow on fish, anyway.

"That settles the meat question for awhile, at least," remarked Henry after dinner was over. "We can get all the fish we want and have them fresh every day. All our days will be Fridays."

"And we can stop on the way back and get some fire from the lava," said William, "and not waste so much charcoal trying to keep it going. By the way, Henry, lend me your watch; I've just thought of something." Henry passed his watch over and William filled the crystal with water and held it in the sunshine above his hand. "Ouch! It's hot! Now, if I only had some punk! I'll remember to look for some the first chance I get."

CHAPTER VI

Edna Takes Swimming Lessons

"Edna, can you swim? I was just talking to William about damming up the brook and making a good swimming-hole near the house. It would be fine to take a cool plunge and a few fast strokes in the morning and late in the afternoon when we stop work."

"No, I'm sorry to say I can't, but I'd love to learn. I think girls ought to know how to swim."

"That settles it, William, we'll build the dam at once. The water is already three feet deep in that level place we were looking at and it ought to be easy to raise it a couple of feet."

When it came to the actual building of the dam, William found that his experience was much more reliable than Henry's theory, but they got along splendidly together, and soon had the work completed. Edna was a little timid at first, but after a few attempts she became braver than her progress warranted. Her example evidently had a powerful effect on Snowball, who stood watching her on the bank opposite the deepest part.

"Snowball sim!" they heard him exclaim, as he

leaped into the water, wildly waving his arms and legs. His violent efforts availed him little, however, for he sank almost immediately and then came up spitting water and splashing worse than ever. "Snowball sim," he insisted, as they hauled him up on the bank to dry out.

Edna continued her lessons and learned rapidly, so that she finally outgrew the little swimming-hole and went with the boys down to the beach, where

Fig. 12. After a year's constant practice, Edna was an easy and graceful swimmer like Annette Kellerman or any other mermaid.

there was easier and better swimming and the water was warmer. When it came to floating, she excelled them all. Lying flat on her back, gently rocked by the waves, she would watch the white clouds floating across the blue sky and dream of the bright day coming when a big white ship would come and take them home. Meanwhile, however, she was thankful and happy and was learning many useful things. Perhaps, at home, she might never have learned to swim or to float.

The boys also taught Edna to swim with her eyes open beneath the water so that she could see the wonderful sea gardens on the bottom, where little coral animals worked away at their building and seaweeds of many colors grew and brilliant fishes went sailing by. A whole new world of striking beauty was thus revealed to her. The bits of seaweed cast on the beach by the tide gave no idea at all of what was beneath the waves.

"Did you ever hear of eating seaweeds?" asked Henry. The others became interested at once and he told them what he knew about the subject, which was not much. Edna promised to experiment with cooking some when they had time to gather them, and William thought it would be nice to make a collection of the prettiest ones to put on the walls of Edna's room.

CHAPTER VII

A Walk in the Forest

"We are going to take a stroll in the woods this morning, Edna, just to see what they are like, and

Fig. 13. Luxuriant vegetation at the edge of a tropical forest, with large ferns in the foreground.

we may be late for dinner. The mountain is pretty steep." Henry joined William, who was waiting,

and off they started toward the forest, stopping at the spring to get a good drink as they passed. The trail followed the stream rather closely, and, as they got higher up the mountain, the woods got thicker and were filled with dense undergrowth and tangled vines. Noisy parrots flew in flocks overhead or moved about in the tree-tops in search of food. At one spot, the ground was covered with the hulls of "sweet cups," the fruits of a kind of passion-flower which the parrots liked very much.

Farther on, they heard monkeys chattering, and saw that they were worried by a number of wild pigs which were eating something under a tree,—probably something the monkeys wanted. Beyond that, the trail came out on a little clearing filled with small trees having glossy, green leaves and coral-red berries. "I wonder what these are," said Henry. "They must be something cultivated." On squeezing one of the berries between his fingers, he was surprised to find two green coffee beans with their flat sides lying against each other. Nearby was a hard, level place where the coffee had been spread out to dry after it was hulled.

"Now, Edna can have her coffee," remarked William, as he began picking the red berries. "I know how to parch coffee; I used to parch it for mother in a frying-pan."

FIG. 14. A bracket fungus whose scientific name, *P. igniarius*, refers to its use for keeping fire over night.

As the path seemed to stop here, the boys thought they had better go back. William had not forgotten about the punk, and he found plenty of it in an old hollow log about halfway down the mountain. He also remembered that the negroes in Virginia used the big, black brackets on locust trees for keeping fire over night, so he collected several that looked like them and carried them along with him to the house.

When they passed the monkeys again, they were down on the ground and the pigs had gone away. "I wonder if Edna would like to have a little pet monkey?" said Henry.

"You mean, *another* one," said William.

After they had told Edna all about their trip and had presented the coffee berries, which she was delighted to get, they asked her if she would like to have a pet monkey. "Yes," she said, "for Snowball. I think it would be too cute for anything to see them playing together. How are you going to catch it?"

This was rather a poser for the boys, who had not developed any plan, but William thought it ought to be easy to trap one in some way. Finally, Henry said, "Did you ever hear of catching monkeys with sugar?"

"You mean, the way they catch birds with salt?" asked Edna.

This provoked a hearty laugh at Henry's expense and he was forced to explain that in some places monkeys are caught through their love for sugar, which is placed in heavy jars with narrow necks and, when a monkey puts his hand into a jar and gets it full of sugar, he prefers to get caught rather than let the sugar go.

"You can try anything once," said William, "but we have no heavy jars and no sugar.—Still, we have narrow-necked gourds and we have some sugarcane in the closet which we can boil, I suppose. A monkey likes bananas, too, but I reckon they are so slick that they would slip out of his hand if he got in a tight place and squeezed them a little too hard."

When the details were all decided, they got out some sugarcane and cut it up into small pieces and put them in a little water to boil; then drained off the liquid, added shavings of cocoanut meat, and boiled it down to a syrup. While this was being done, a large gourd was cleaned out and partly filled with sand and gravel to give it the proper weight, and a piece of banana leaf pushed in on top of the sand to keep the "syrup of cocoanut" clean. This syrupy mixture was certainly sticky and, if a mon-

key ever got hold of it, he would find it hard enough to let go.

The boys put the gourd that night out under the tree where they had seen the monkeys, and went early next morning to see if they had caught anything. Long before they reached the tree, they heard loud chattering, and, when they came in sight, they found that one monkey had his hand in the gourd and the others were trying to get at the sugary mixture. The greedy monkey was easily captured, while the others scampered up the tree and seemed to be laughing at his misfortune.

Edna's delight and Snowball's rapture when they saw the monkey may be easily imagined. It was the beginning of many happy days and not a few anxious moments. If there ever was an imp of mischief, that monkey was one. And the worst of it was that Snowball tried to do everything it did. The monkey's influence with him far outweighed that of the other members of the family, and it was usually bad.

To illustrate what the monkey was capable of doing: the boys had taken great pains to erect a tall bamboo flag-pole on the beach with a white flag on it to attract any ship that might be passing near; but they had not gone a hundred yards toward home

before they looked back and saw the monkey with the flag wrapped around his waist, in imitation of Snowball. At any other time, it would have been comical, but now, after all their hard work, it was decidedly annoying. "Just for that, I'm going to keep him picking cocoanuts until his back aches," said Henry.

CHAPTER VIII

Mushrooms and Toadstools

One of the first effects of irrigation in the garden was to bring up a nice patch of mushrooms near the banana trees. William began to kick them over,

Fig. 15. A variety of the common edible mushroom.

when Henry stopped him and said they looked like one of the good kinds. "I thought they were frogstools," said William. "I've seen some like them growing in the pastures at home, but they didn't look like they were fit to eat."

"I never ate any mushrooms myself," replied Henry, "but I've wanted to try some ever since my teacher took me up to the Botanical Garden one Saturday afternoon to hear a lecture on edible and poisonous mushrooms. It was illustrated with beautiful colored lantern slides of all the poisonous kinds and many of the edible ones; and I was surprised to learn that so few were poisonous. The worst ones have a sort of cup at the bottom of the stem called the 'death-cup,' by which they are easily recognized; while most of the other poisonous kinds simply make you sick without killing you."

"I don't mind being made a little sick," said William. "Suppose we try eating some; it would be great sport." So they got out their knives and carefully cut off a number of the delicate white caps that were still pink underneath and took them in to Edna to fry. She was glad to get a new dish, but was afraid to eat much of them, claiming that they tasted like rotten wood.

"Don't you like mushrooms?" said William, who

had finished his share. "Well, just hand them over to me; I may as well be hung for a sheep as a lamb."

"I believe I could learn to like them," said Edna, "if I wasn't afraid of being poisoned."

"You certainly started out all right," said Henry. "The lecturer said it was perfectly safe to eat any mushroom if you went about it right, trying a little bit at first and then more and more if you found it didn't hurt you, until you were certain it was an edible kind. We would have to experiment with most of the kinds here in that way, anyhow, because they are almost sure to be new to us, like the trees and flowers."

"How about the one we ate?" said William.

"That was so much like the one in the New York markets," replied Henry," that I thought we could take a chance. I looked carefully for a 'death-cup' and I noticed the pretty pink gills, which turned black when they got old. This kind grows wild all over the world and is cultivated in cellars, caves, old mines, and specially constructed mushroom houses. You can buy it in cans, too."

"Me for mushrooms!" said William.

It is remarkable how far an idea, thus accidentally picked up, will sometimes carry with young people. The whole family, Snowball and the mon-

FIG. 16. The many-colored polypore, a fungus very common on dead wood.

key included, became enthusiastic in their search for mushrooms of all kinds, both in the fields and woods. These frail, bright-colored plants seemed to spring up everywhere after they learned to see them, and the number of different forms was truly astonishing. Many were eaten fresh and others were dried and laid by as a reserve stock. It was discovered that most of them had their own peculiar flavors, and added to the relish for other foods.

Then the leathery and woody kinds, which grew on trees and logs, began to be noticed and brought in. They were even more abundant than the fleshy kinds, but too tough to eat. William had been using some of the bigger ones for keeping fire and he was already pretty well acquainted with them. "I wonder what else they are good for?" he said.

"I have heard that they make the trees and timber decay," replied Henry, "but I never knew they were good for anything."

"You can get punk out of some of them," said William, "and with punk you can light a fire in any kind of weather."

"I know about the watch trick," said Henry, "but suppose the sun isn't shining?"

"That's just the point. Let me show you," answered William. And he took a piece of punk from

his pocket and knocked a shower of sparks upon it from a piece of hard rock by striking it a glancing blow with the front of his folded knife. Soon a little wisp of smoke curled up from the punk as a round black spot appeared on its surface.

"Easier than rubbing two sticks together," remarked Henry. "I always wanted to see that trick done."

The monkey took to the woody kinds quite naturally and threw them down from the trees like cocoanuts. After making himself sick once or twice by eating raw mushrooms picked up in the woods, he seemed to lose interest in the game; but he could chew on the woody ones all he pleased. One day, William missed his stock for keeping the fire. After searching about for some time, he discovered that the monkey had carried them all up on the top of the house.

CHAPTER IX

The Fields beyond the Garden

It was now time to think of the more substantial foods, and the boys eagerly sought the cultivated fields to the east of the garden to see what they might supply.

A field of corn first attracted their attention, and it was a welcome sight. At first, they parched the grains and ate them whole; then they tried cracking them and boiling them into a coarse mush; and, finally, they found that by soaking them in water they became soft and could easily be crushed between stones into a kind of meal, which was then made into little cakes. While the corn was green, they had all the roasting-ears they wanted; and, of course, they saved seed and kept planting a little every few weeks.

"I'll declare, a big patch of goober peas!" exclaimed William. "I used to grow a few myself."

"What's that?" inquired Henry.

"I reckon you'd call them peanuts, but I prefer goobers," William retorted. "See how the little stems curve and dive into the ground after the flow-

Fig. 17. An Indian woman in Mexico selling corn cakes to people on the train.

er fades. We can keep some of them raw and roast some—and we can make peanut candy!" Henry had never seen peanuts growing and he pulled up a vine and examined it with much interest.

"I see now why they are called peanuts," he said, "because the flowers and shells are like peas and the meat like nuts; but I cannot see why they are called goobers."

FIG. 18. A sweet potato patch, with royal palms and farm buildings in the background.

"We will leave that to Edna," said William.

A patch of sweet potatoes came next, of the red kind, which William especially liked. He had visions of them sliced and cooked in a deep dish with milk and sugar, or baked and soaked in butter. Even a cold one was not to be despised. And it was a real pleasure to dig sweet potatoes, because they

Fig. 19. Removing seeds from cocoa pods. Cocoa probably originated in Mexico, where the Aztecs used the seeds for money as well as for making a beverage. The Mexican name was "Chocolatl," and the Spanish "Cacao."

were so large and pretty and came out of the ground so easily.

"What do you suppose these are?" said Henry. "They look like tree muskmelons." There was row after row of small trees with yellow "melons" fastened close to their trunks and larger limbs in a peculiar way, while mixed with them were small green fruits and flowers. On cutting one of the "melons" open, they found large, bean-like seeds, which were light in color and bitter in taste, and the flesh was very different from that of a muskmelon.

"Give it up," said William. And so did Henry. If the beans had been cured, roasted, ground up with sugar, and pressed into cakes, they would have been recognized at once as sweet chocolate; but, tucked away in "melons" on the trunk of a cocoa tree, they were different.

The next plants were also a puzzle to them. They were only a few feet high, tough and woody, and without fruit. When the boys finally succeeded in pulling one up, they found several long, thick roots that tasted sweet and starchy. These roots could have been dried, grated, and baked into excellent cakes, if they had only known it; for the plants were sweet cassava, or manioc, from which tapioca is made.

"We won't need any of this," said William, as

they passed a patch of tobacco. "I suppose it is equal to the best Havana, but nobody will ever know it Look at that big, green tobacco worm; it reminds me of my childhood days." Henry figured what the crop would be worth in New York if made into cigars at fifty cents apiece; and, as he turned away, he remarked," "What a lot of money New York men blow up in smoke!"

Fig. 20. Cuban girls at work in a cigar factory. They strip the tobacco and men on the next floor roll it into cigars.

Beyond the tobacco were vines bearing spikes of small green flowers trained on poles almost as tall as hop poles. But the boys obtained no clue to their identity until they dug one of them up and found roots somewhat like sweet potatoes, but larger, more irregular in shape, and not so sweet. These are what we have been eating," said William. "Edna found quite a lot in the closet and has been boiling them. You remember how we liked them?" They were really yams, quite different from sweet potatoes and preferred to them by many people in the West Indies, where they are extensively grown. A single yam will sometimes weigh over thirty pounds.

"Pineapples!" exclaimed Henry. "I saw some little ones at the Botanical Garden. Look at the ripe fruit! Watch out for the sharp teeth on the leaves! I'd hate to have to gather pineapples for a living."

"I always thought pineapples grew on trees," said William. "Let's try one." He selected a soft, ripe one and peeled it carefully, while the juice ran between his fingers in an appetizing way. "Won't Edna be glad to get these," he said, after a few delicious bites. "I never tasted anything so good in my life."

"You'd enjoy living in Hawaii," said Henry. "They waste enough pineapple juice in their canneries over there to sweeten the Hudson River. Now we are stumped. Whoever saw anything like this plant!"

FIG. 21. A pineapple field, with bananas in the background. In Old English, pineapple meant pine cone, but it has now entirely lost its original meaning.

William shook his head. "Pull one up," he said. "Let me see; it looks like calamus root; but look at those long leaves and small, purplish flowers."

"It's ginger," exclaimed Henry, after tasting it. "We can preserve some of it in syrup, and perhaps we can make crystallized ginger. Think of the ginger ale I have drunk and never knew what the plant looked like!"

"Let's give one of the roots to the monkey," said William, "and see how he likes it."

Fig. 22. Cutting sugarcane with the machete.

The Sugarcane Field

The sugarcane field appeared to the boys like an overgrown, much tangled cornfield, without any

corn where the ears ought to be;—a great place for a fire when the fodder got dry and an ideal home for snakes at any time. There was a great deal more cane than they could ever hope to use, even if they had a mill to squeeze out the juice and a boiler to evaporate it down so that it would turn to sugar. William knew the process of making molasses from sorghum; where the stalks were stripped of their leaves and passed through rollers and the juice boiled down in a large vat; but he racked his brain in vain to think of some way they could get the juice out of the sugarcane.

Fig. 23. Loading sugarcane. This cart will hold six tons.

He and Henry talked of water-wheels, cider-presses, levers, screws, wedges, and every other form of mechanical pressure they could think of without hitting upon anything suitable to the conditions there. Visions of peanut candy, preserved ginger, and cocoanut taffy were fast fading. Finally, they decided to begin at once in the simplest way and think out some better scheme later. So they hunted up a big rock that was curved in on its upper side and there they mauled the sticks of sugarcane and twisted out the juice like wringing out clothes.

Snowball carried the juice to the kitchen, where Edna boiled it down. Both he and the monkey were much more interested in this stage of the process than in the first. Henry soon discovered, however, that the monkey had nothing to do, so he set him to stripping the leaves from the cane and putting them in a pile for the beds. Sometime later, the boys looked up from their work to find the monkey gone. They called him and looked for him everywhere. At last, William noticed a little motion in the pile of fodder and found the monkey hiding under it, with a mischievous twinkle in his little eyes.

CHAPTER X

Snowball and the Monkey Go Collecting

Snowball and the monkey slipped off together one morning to do a little collecting of their own. They had in mind a clump of guava trees that grew up on the hillside, but they were ready for any other excitement that might turn up by the way. Flowers, fruits, birds, insects—anything and everything appealed to these youthful collectors.

The first thing the monkey did was to break up a bird's nest and share the eggs with Snowball, leaving his face streaked with yellow. Then they discovered a wild lime tree and got their insides so sour from sucking lime juice that they craved sugar at any cost. The monkey seized upon the first opportunity that presented itself and came running toward Snowball with a piece of dripping honeycomb in his hand and a swarm of bees after him. The bees, finding Snowball unprotected, began to pepper him both above and below the belt, so that he fled precipitately, screaming at the top of his voice.

We next find the two adventurers seated side by

side on one of the buttresses of a giant ceiba, or silk-cotton tree, fanning themselves vigorously with palm leaves. The bee-stings had begun to swell

Fig. 24. A large silk-cotton tree by the roadside, near Havana, with a pinguin hedge in the foreground.

and were not hurting so much now, and the monkey was very sympathetic. Gradually, Snowball fell asleep. When he awoke, he was stretched out com-

fortably between two buttresses with a bunch of silk-cotton under his head. As was said before, the monkey was very sympathetic and evidently regretted the bee episode.

At last they reached the clump of guava trees and began stuffing themselves with the fruits. There were some that looked like red apples and others that resembled yellow pears. Snowball tried to take both kinds home to Edna, but he weakened on the way. The only thing he had any success with was flowers.

After barely escaping violent death under a cannonball tree and getting his mouth full of cactus prickles, our little suffering hero sat down to rest on a fishhook cactus, but arose immediately and with difficulty, leaving much of his sash behind him. The monkey regarded him mournfully, as though he ought to have known better.

When the two wanderers reached home, Snowball sadly held out a withered bunch of flowers, while the monkey put his hands up to his eyes as if he were going to cry. Edna washed Snowball's face and hands, gave him his dinner, petted him a little, and put him to bed. By next morning, the swellings were mostly gone, but he was restless and continually scratching. The monkey, too, spent most of the day scratching and looking himself over.

The fact was, they had run into a swarm of ticks out in the field and there was no one who knew what was the matter. These tiny, insect-like creatures had crawled over their bodies in large numbers hunt-

Fig. 25. President Palma (in the center) examining Cuban cattle ticks.

ing for blood, and were now slowly burying themselves in the skin, causing severe itching and great discomfort.

Snowball slept very little for a week. Bacon rinds, baths in cold spring water, and all the other

remedies that Edna could think of seemed to do little permanent good. Cebadilla and alcohol were out of the question. If the monkey had not been so busy with his own troubles, he might have shown himself a true friend in need by picking the little beasts off of Snowball before they got under his skin.

It was a long, long time before our hero undertook another collecting trip. To the monkey, it was more or less of a lark, but not so to Snowball.

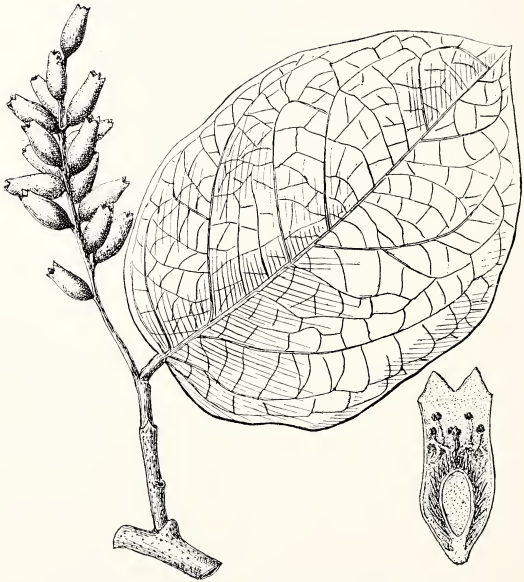


Fig. 26. A leaf and flower cluster of the lace-bark tree.

CHAPTER XI

The Matter of Clothes

Clothes may be largely used for personal adornment or the subject may be reduced to a matter of bare necessity. It is easy to see how, in warm countries, where clothes may become burdensome, the desire for ornament often expresses itself in rings, shells, feathers, beads, and other decorations.

"What are you making, Edna?"

"A what-you-may-call-em for Snowball. The way he wears out his clothes is perfectly disreputable."

"I wish you would make me one, too," said William. "This place is dreadfully hard on clothes. In a little while, we'll all need what-you-may-call-ems."

The subject came up again after dinner; it was getting acute. After a hunt through the house, they finally found a half-finished hat, that looked like a Panama, and some leaves from which the fibers had been split, so that it was easy to locate the pretty little palm-like hat-plants and imitate the weave in other hats. As Henry said, the hat was

the most important part of the dress, because it shielded the head from the sun, and, so far as he was

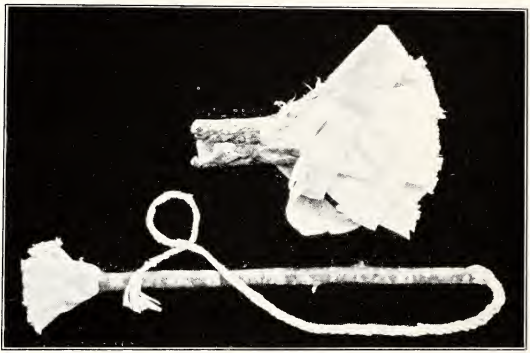


FIG. 27. The upper figure shows a section of wood with part of the outer bark removed, exhibiting the lace-like character of the inner bark; the lower figure represents a whip made from the lace-bark tree.

concerned, he didn't care for much else—he could go barefoot.

But Edna thought they could at least be as well dressed as the Sandwich Islanders; so she kept them hunting until they found soft, stout grasses and rushes, out of which she wove trunks for the boys and a bodice and skirt for herself. A string of beads

made of scarlet beans and small pink shells completed her toilet for the time being. Later, however, William discovered, through his fondness for whittling, a little tree that had wonderful, ready-made lace beneath its bark and Edna had a chance to indulge her love of dress still further.

Fig. 28. A piece of natural lace just as it comes from the lace-bark tree.

Had she only known it, the pinguin hedge around the garden contained the elements of the most beautiful ball-gown, which she could have ornamented

at night with phosphorescent beetles; and there was wild cotton not far away; and plenty of alligator skins for shoes and sandals, with mangrove bark for tanning.

Snowball kept begging for beads like Edna's, so they made him a string of castor-oil seeds, which he wore as an amulet around his neck. It was more palatable in this way than from a spoon. And then Snowball was not entirely satisfied—not until the monkey had a string of castor-oil beans around his neck, too!

CHAPTER XII

William is Attacked by a Wild Boar

"The bacon can't last very much longer," said Edna at breakfast one morning, "and I don't know what we shall do when it is gone; I cook almost everything with it. I reckon I could use cocoanut-oil if there was any way to make it, but bacon is so much better. Think of corn-cakes, or fish, or mushrooms without bacon!"

"The woods are full of pigs," replied William, "and it ought to be an easy matter to trap them. Leave that to me. If I can trap rabbits, I can trap pigs; they are so much greedier."

He worked all day at his trap and, about nightfall, took it up into the woods and baited it with an ear of corn. After breakfast next morning, Edna waved him a goodbye and wished him luck. At dinner he had not returned, so she sent Henry to look for him, while a vague fear crept over her that something unusual and serious had happened.

After hunting about in the forest for some time, Henry heard a far-off shout in answer to his own and ran joyfully in that direction. William had

caught two young pigs and was just about to take them out of the trap when a huge wild boar ran out of the underbrush and attacked him savagely, giving him just time to escape up the nearest tree. And there he had been sitting for hours in a cramped position, hungry, thirsty, and thoroughly tired out.

Whether it was Henry's appearance on the scene, or whether the boar had made up his mind to leave anyhow, they could not tell; but it was a wonderful relief to William to be safe on the ground once more, and he and Henry took the pigs and hastened home with them as quickly as possible.

"He almost got my bacon!" William said, as he was relating his experience to Edna. "But that's nothing; a fellow has only one life and he might as well enjoy it. I'm going to catch more pigs."

William's efforts at trapping were very successful but he kept a sharp lookout for boars. Some of the pigs were put in a pen and fed plentifully with various things from the fields and garden. It was such a delight to watch them eat that all the family took turns at feeding them; while Snowball and the monkey would even steal food from the table and sneak out to the pen with it. When they found, however, that the pigs liked royal palm nuts better than almost anything else, they kept picking them until

they stripped the tree bare; the monkey climbing around in the tree and throwing the little nuts down to Snowball while he gathered them up into piles.

Getting Salt for the Bacon

Of course, no bacon is a success without salt, and there was very little salt left; so that raised another question. Henry said that salt was found in mines, and that he had read about the wonderful mines in Poland, where men worked and their families stayed all their lives among the sparkling salt crystals.

"The ocean water is salty enough," said William, "and why can't we boil it down the way we do sugar juice?" That was a workable idea and they began at once to follow it up, only they improved on it by putting the water first into the canoe, a little at a time, and letting the sun evaporate it down so that they wouldn't have so much to carry home nor so much boiling to do afterwards.

The sight of the brine made Henry think of something else. "Do you remember how good salt mackerel used to taste, William? Why can't we pack away a lot of fish in salt and have them on hand to eat whenever we like?"

"And why can't we preserve gherkins and snap-beans and other vegetables in brine and then make

vinegar and pickle some of them?" chimed in Edna, as she thought of the cucumber pickles and chow-chow and sweet pickled peaches of former days.

"How would you make the vinegar without apples?" asked William.

"I thought vinegar could be made out of almost anything sweet," Edna replied, "like oranges or molasses or even sugar syrup itself. You know how sweet things turn sour when they are left open for a few days."

This interesting conversation was interrupted by squeals and loud cries from the direction of the pig pen, where they found Snowball and the monkey trying to ride two of the pigs, while the whole pen was in an uproar. Whether it was Snowball's idea or the monkey's, poor little Snowball was getting much the worst of it and was sincerely glad to be rescued. He seemed to think it very ungrateful of the pigs not to give him a ride after all the nuts he had given them.

CHAPTER XIII

Planting Potatoes

All the members of the family were in the garden one afternoon, planting potatoes. It was one of those rare occasions when Edna could get away from household duties and enjoy the free, outdoor life with the boys.

Henry was opening the newly-made hills, Snowball was dropping, and William was covering. Edna sat in the shade of a plantain tree and cut the seed potatoes into pieces, while the monkey went back and forth between her and Snowball, keeping him supplied.

"Some of these potatoes have sprouted," said Edna. "What shall I do with them?"

"I don't know," replied Henry, "but suppose we take a chance and plant them." However, when he looked at the slender, white shoots, he had little idea that they would ever amount to anything.

A few days later, they were all in the garden again, picking beans for dinner. "Just look how those potato sprouts have changed," remarked Henry, who could scarcely believe his eyes; for the thin, sickly-looking shoots had become green and robust and leaves were forming on them.

"My gymnasium instructor was always talking about sunshine and fresh air," Henry continued. "He said that the sunlight killed germs, stirred the blood, helped digestion, and made people healthy and strong. City boys have to be told about these things; and think of the pale-faced city girls who would change just like those potato sprouts if they lived out in the sunshine!"

"But they are afraid of getting freckled," said Edna, "and then the boys wouldn't like them."

"That's where you are mistaken," Henry objected. "Boys like healthy girls with rosy cheeks and bright eyes, and my gym teacher says that the worst thing that can happen to a man is to get a sickly woman for a wife."

"Am I intruding?" said William. "What's it all about?—Well," he said, after getting the gist of their conversation, "we don't like you any less, Edna, because your cheeks are rosy, and, if I could have my way about it, every girl I know would be playing games with the boys and climbing trees until she was twenty, instead of sitting in the house and powdering her nose."

"But what about their clothes?"

"O, hang their clothes!" concluded William, with some warmth.

CHAPTER XIV

Chased by an Alligator

Henry and William took a stroll along the sea beach one day, just to see what they could find. It is remarkable how this habit takes hold of one when indulged a little. Every wave is expected to bring in a new wonder and every sand-hill to hide a buried treasure. Henry had spent hours at the Coney Island beaches watching men digging and sifting the sand for rings, bracelets, combs, and beads lost by the bathers, so he knew the fascination of the game; while to William, everything connected with the ocean was new and intensely interesting.

They picked up one pretty shell after another; they marvelled at the delicacy and beauty of the seaweeds; and inspected the starfish, sea-urchins, sponges, jelly-fish, and other queer creatures from the mysterious deep. They stumbled over long, trailing vines that seemed to run everywhere, and ran into clumps of cacti, strumpfia, and pencil bush and thickets of sea grapes, with their broad leaves and long clusters of purplish-red fruit.

Finally, while resting under a clump of cocoanut

trees, they caught sight of a mangrove swamp not far away and went to get a closer view of it. The trees had spread like banyan trees and had collected

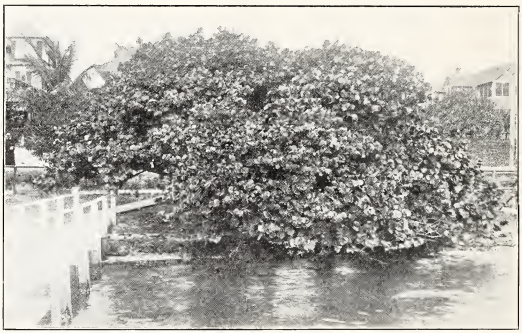


Fig. 29. The sea grape, at Miami, Florida.

earth and trash about their roots so that they were fast filling up the shallow marsh, but there seemed to be no ground firm enough to walk upon yet.

"I wonder if we could get in there with the canoe," said Henry. "I should like to taste some of those fruits."

The words were scarcely uttered when a big alligator came toward them on a run with his mouth

open as wide as a cellar door, causing the boys to turn and flee in dismay in different directions. The moment of hesitation, while he was making up his mind which one to chase, was all that saved them. Back to the cocoanut trees, the boys fled, and climbed up as high as their remaining breath would permit; but came down when they saw that their pursuer had gone back to the swamp.

"Did you ever hear of breaking an alligator's back by running in a crooked line?" said Henry, after his nerves had quieted down a bit.

"The trouble about all those tricks is," said William, "that you never think of them when you need them." Then he added, laughing, "Snowball would make fine alligator bait."

"You ought to be ashamed to talk that way," replied Henry, in a ruffled tone of voice. "You Southerners think a negro is no better than an animal and you treat him that way."

"Can't you take a Southern joke?" said William, conciliatingly. "We like the negroes much more and treat them a lot better then your people do, when it comes down to facts, because we understand and appreciate them."

"Well, we came near being alligator bait, ourselves," said Henry, in a friendly tone, as they start-

ed toward home. On the way, they entertained each other with all they had read or heard about alligators and crocodiles, big and little, from the shooting of gavials in the neck to the Indian method of catching alligators with a stick sharpened at both ends, which was thrust down the 'gator's throat when he opened his mouth.

"Wouldn't it be great," William exclaimed, "to go off to India or Africa and hunt big game, like Dr. Hornaday or Mr. Roosevelt!"

CHAPTER XV

The Trees in the Yard

The orchard was not a regular orchard, but the fruit trees were scattered about the yard and fields and in the edge of the woods in a careless sort of

Fig. 30. A fruit stand in Havana under a laurel tree. The oranges are always peeled before they are sold.

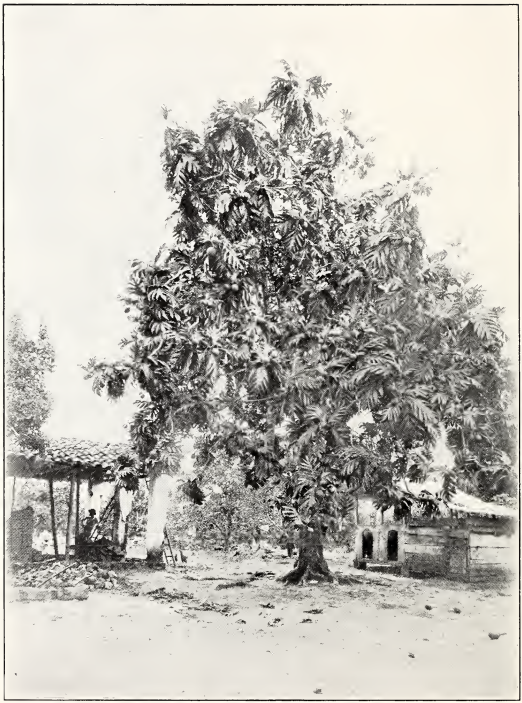


Fig. 31. A breadfruit tree.

way, giving one the impression that they had just come up of themselves; which was probably true of most of them.

By the front gate, were two mango trees, one with red and the other with yellow fruit, but neither a very good variety. The trees were large, rounded, and shapely, and bore an abundance of fruit, that ripened in April and May. William thought mangoes tasted too much like turpentine and Edna hated to eat them before the others, but Snowball fairly reveled in them, smearing the juice over his face and hands and half way down his little fat body. He and the monkey were largely responsible for the fibrous seeds that covered the ground under the two trees.

Shading the walk from the gate to the house, were lemon and sweet orange trees, which perfumed the air with the fragrance of their blossoms; while at one corner of the house and along the garden hedge-row, were several breadfruit trees, with their large, deeply-lobed leaves and round, greenish fruits nearly as big as a man's head. These fruits are sweet and starchy when ripe, somewhat like a sweet potato, and are commonly cooked as vegetables, either by wrapping them in leaves and baking between hot stones or by boiling and serving with

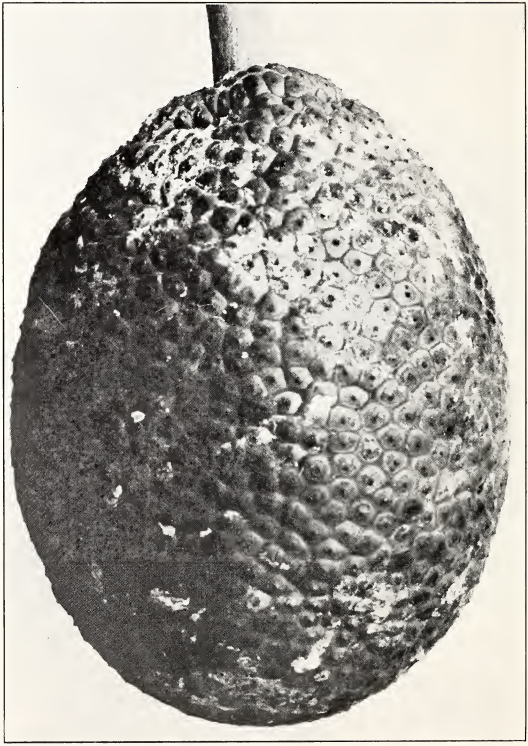


FIG. 32. A single breadfruit.

some kind of sauce. When properly cooked, fresh from the tree, the breadfruit is most delicious. Jackfruit trees make good shade for coffee bushes.

Besides the clump of cocoanut palms shading the spring, there were several others scattered about the place, which yielded an abundance of ripe and half-ripe nuts throughout the season. Edna always kept a supply of fresh cocoanut water on the table for drinking, and she used the creamy young meat to put on one of her favorite desserts, a mixture of sliced oranges and bananas.

The cocoanut palm is an exceedingly valuable tree, every part of it being useful for something. The trunk, the leaves, the husks, the green nuts, and the ripe nuts furnish wood, fibers, and foods. Coir fiber, used in making mats and ropes, is made from the husk of the unripe fruit; brooms from fibers in the leaf-stalk; oil for burning, making soap, and eating in place of butter, is pressed from the ripe meat; sugar is obtained from the sap of the young flower cluster; and various utensils from the shell of the nut.

A single royal palm towered between the house and the kitchen, its straight, smooth trunk looking like a shapely Grecian column. Several smaller palms of different kinds, such as the small-fruited

Fig. 33. An avenue of royal palms in Cuba. The nuts are very small, but are borne in large clusters. The leaf-sheaths are used for the sides and partitions of houses, and also for baling tobacco.

thatch palm and the silver thatch palm, were arranged about the yard, singly or in clumps, evidently planted there for ornament; while the southern palmetto, or cabbage palm, was mostly found in the fields. The boys had heard that its young leaf-buds were good to eat, but they hated to cut down

FIG. 34. A Cuban hut made entirely of royal palm.

the beautiful trees for the buds alone, and the monkey could not be induced to gather them, since they were not mentioned in his text-book of botany. He had no difficulty with cocoanuts, because his own face was stamped on the end of each one of them.

Fig. 35. Leaf-sheaths of the royal palm are often used for the sides of houses.

Palmetto cabbage is white and brittle like celery but much richer in flavor. The "turnip" at the base of the young leaves is slightly bitter until parboiled. Several other palms also furnish this kind of "cabbage." The corozo palm, with fruits shaped like persimmons, had so many long spines on its trunk that it made the monkey weep to look at it.

One of the prettiest fruits found in the yard, and one entirely new to the children, was the star-apple,

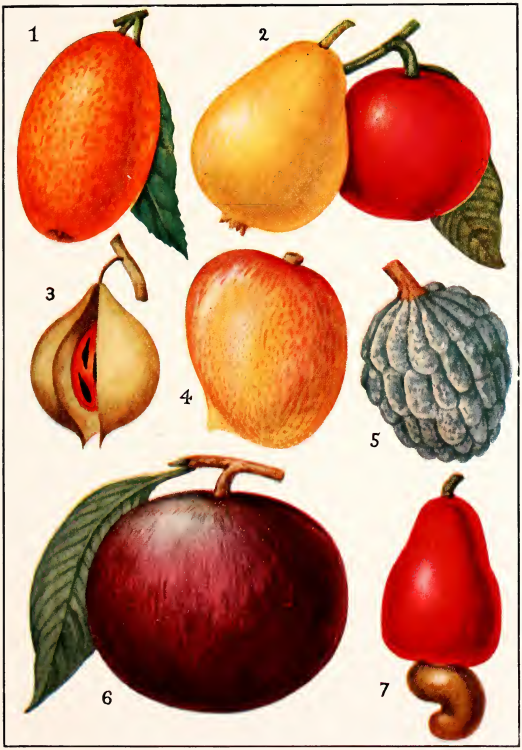
Fig. 36. Barrel palms, which often grow with pines in western Cuba.

a smooth, purplish fruit about the size and shape of an apple, with a rather peculiar flavor. When cut crosswise, the brown seeds showed conspicuously in a central star of jelly, surrounded by a pulp colored like crushed raspberry and cream.

The sweet-sop, or sugar-apple, was found to be entirely different from the star-apple, being somewhat larger, green in color, and very rough in appearance, resembling a small pineapple with its crown of leaves cut off. It was a favorite in the family, especially among the younger members, because of its sweetness.

It was a great pleasure to watch these trees grow and blossom and ripen their fruit from season to season, and it was no less pleasant to eat the various fruits when ripe and enjoy their novel and attractive flavors. Edna also experimented a good deal with preserves, sweet pickles, candied fruits, and jellies, greatly to the satisfaction of the entire family. There was nothing the monkey and Snowball would not do for her on "preserving days."

There were also some beautiful shrubs in the yard, among them elder, crape myrtle, oleander, croton, purple dracaena, the Chinese rose, or shoeblack, with large pink flowers, and the jatropha, with rose-colored flowers. These were all planted for ornament.



SOME TROPICAL FRUITS

Figures 4 and 5 are much reduced

1. Kumquat
2. Guavas
3. Nutmeg
4. Mango
5. Sweet-sop
6. Star-apple
7. Cashew-nut

William loved the elder best of all, not because it was the most beautiful, but because it was associated in his mind with lovely pop-guns and squirt-guns.

CHAPTER XVI

Some Interesting Discoveries

William came in one morning with his face all wreathed in smiles and announced to Edna secretly that he had discovered some watermelon vines down in the field, that just came up accidently from scattered seeds. A few weeks later, he brought in a ripe watermelon and put it in the spring until after dinner, then surprised the family with it.

Henry took it rather calmly; Edna feigned a big surprise; Snowball grinned knowingly while he struggled with his memory; and the monkey looked on with a wizened face as if something was about to happen. William was confident as the knife cracked through it, because he had peeped inside through a tiny little plug before he pulled it.

With the flash of red color, Snowball recovered his memory and smiled broadly, while the rest of the company moved in toward William with renewed interest. Snowball got the first slice: it was really Snowball that William first thought of when he discovered the vines; for what little darkey could be happy without his "watahmilyun"! Without cere-

mony he dived into the luscious meat, while the juice spread to his ears and the seeds flew in every direction. When he had eaten the rind down to the bitter part, he handed it to the monkey and signalled loudly for more.

The monkey nibbled a little on the rind, made a wry face, and threw it into the garbage basket; then began to pick up the seeds. He refused to accept any more watermelon until William gave him a big red chunk out of the center, which caused him to change his opinion.

When the melon was finished, William cut the rind into pretty shapes for preserving and saved most of the seeds for another crop; the monkey watching him enviously meanwhile, thinking he was going to eat all those seeds by himself.

Finding Lightwood

A short time afterward, William made another important discovery while wandering over the slope of the mountain. A little grove of pine trees, much like some in Virginia, covered one of the dry knolls and many of the trunks had fallen and rotted away, leaving only the resinous heartwood and fat pine-knots.

The house had been in darkness at night, except

on moonlight nights and on special occasions when a fire had been made in the yard, so it was no wonder William grew excited when he saw all that lightwood.

As soon as he got home with a bundle of it, he split some and put it in the kitchen to start the fire with, and then stuck a big bamboo post in the ground near the table and filled the hollow end at the top with several sticks, which he intended to light when it began to get dark. For little torches to carry around, he split several sticks into fine slivers at one end, leaving the lower end for a handle.

The lightwood was a great success and was extremely useful. It was also very exciting to go through the forest at night with torches and get a close view of the night life, or to float on the water in the canoe with a bright light at the bow and watch the fishes while they were dazzled.

Candles

One discovery sometimes leads to another. Henry was out alone one day and discovered a tree with berries on it that were covered with wax like those he had seen used for making bayberry candles; so he took home as many as he could carry and boiled them, causing the wax to melt and rise to the top.

It took considerable ingenuity to make the candles, even after he got enough wax, but they were finally molded in small bamboo joints, with wicks made from wild cotton, lace-bark, or split rushes. When the rushes were used whole, the wax couldn't get through the outer skin as it burned, so the entire rushes were used only for making small rush tapers.

The tree that furnished the berries was the wax myrtle or candle-berry tree, having fragrant leaves and small, rounded fruits. The wood of this tree is useful only for fuel, but the wax has been much used for candle-making.

The candlesticks were made in various ways, the simplest being of bamboo, with a wooden bottom. Edna had to use her scissors for snuffers.

Making Soap

The children didn't know when Sunday came, but they tried to keep clean just the same; although it was sometimes rather hard to do it without soap. Edna had been quietly saving all the old grease she could and one morning she announced that she would make some soap if the boys would furnish the lye.

This caused Henry only to stare; but William be-

gan at once to collect ashes and make a lye hopper, into which he put the ashes and poured water on them and it dripped out below as lye. The soap, when finished, was a little strong in alkali, but highly perfumed with vanilla, nutmeg, and other flavors, and it certainly removed the dirt—sometimes the skin also!

CHAPTER XVII

A New Idea

"I wish I could see a movie," remarked Henry one evening after supper as the twilight shadows were deepening. "We have shelter, and clothes, and food, for which we have worked hard; but we need entertainment, such as friends and books and music and the movies would give us."

"I'd like to see a movie, too," said Edna, "but not in these clothes. If I only had a good novel to read, I think I'd be perfectly happy."

"Didn't Shakespeare say something about 'books in the running brooks' and 'sermons in stones'?" interrupted William. "I always had a lot of fun roaming through the woods and fields when I had any spare time. We have woods and fields here and also a brook and the ocean."

"I believe you were cut out for a naturalist," said Henry. "I used to enjoy looking at the animals and plants in Bronx Park and the collections in the Museum of Natural History, but I never seemed to have time to get out into the wild woods much."

"Suppose we make a bargain," said William. "You tell me all you can remember about the collections in New York and I will be your guide in the woods."

"That leaves me out," said Edna. "Can't you bring some things in for me to see and tell me about them?"

"Certainly," answered Henry," and that gives me an idea. Why not make a museum here? It would be lots of fun and would give us just the entertainment and the object in life that we need."

"How about a zoo?" said William, warming to the idea. "I could trap the animals and we could keep them in cages. Edna could feed the birds and train them to sing."

"And I could have beds of wild flowers and a fernery," said Edna. "Snowball could carry water for them and the monkey could pull the weeds!"

"Farewell, flowers!" exclaimed Henry and William in chorus.

Long after she went to her room, Edna heard the two boys talking excitedly about their new plan, and they must have followed it up in their dreams, because it was the first thing she heard next morning. They had designs on the sitting-room and the hall and every other available space—and were even talking about putting up a museum building!

"I am sorry to tell you, but the charcoal is nearly out," Edna announced at the breakfast table, just when the museum discussion was in full swing.

"We'll have to build a camp fire for you out in the yard," replied Henry, "but it will be awfully inconvenient for cooking. I know, because I tried it once."

"Not at all necessary," remarked William. "We can burn all the charcoal we want. I helped with a charcoal kiln once when we were raising tobacco and I'm certain I can manage one. It takes about a week after the wood is cut and the fire started."

"Then we may as well stop talking about our museum and get to work," said Henry, rather mournfully.

"I must disagree with you again," William said hopefully. "While we are cutting the wood for the charcoal, we will cut off sections of each kind for our collection and finish them up while watching the kiln. That will make the work seem easier."

"All right, William, I'm with you!" said Henry, as he jumped up and started for the woods.

Making Charcoal

They selected a level spot near the stream in the thickest part of the forest and, after cutting away

all the trees and bushes, they cleared off the leaves and leaf-mold so that the fire would not spread into the woods. Then they cut the wood into five-foot lengths and stood them on end in a round pile with a small hole in the middle for the chimney. This took them several days, a little longer than necessary because they wanted to get as many different kinds of wood as possible. If they found a tree that was too soft for charcoal, they cut off a section and threw the rest away.

When the pile of wood was broader than it was high, they covered it with dirt to keep out most of the air and set it on fire at several places around the bottom. The rest was easy; they only had to regulate the air and cover up any holes that broke out on the sides or top. As the kiln now had to be watched both day and night, they took turns, six hours at a time, amusing themselves with the wood sections and trying to get a complete collection of the leaves, flowers, and fruit of all the trees within sight of the kiln. Every time the watch was changed, an armful of specimens was taken to the house for the museum.

The monkey often went to the kiln during the day and always at night, because of the excitement. One night, while on duty, William fell asleep and

was dreaming of gathering apples in the top of a tall tree on a windy day, when something suddenly tugged at his arm and waked him up. It was the monkey—and the kiln was blazing like a volcano out of a big hole near the top! After hurriedly stopping the hole with dirt, William patted his faithful little companion on the head and said, "Well, old fellow, you certainly saved us that time. All our work would have gone up in smoke in no time if you hadn't waked me."

William had been inclined to tease the monkey a little before, at times, but he always had a soft spot in his heart for him after that.

CHAPTER XVIII

The Collection of Woods

The boys became so much interested in studying the trees and making museum collections of them that many weeks slipped by before they could think of anything else not absolutely necessary. Wherever they went, they came back with tree specimens. After they had worked along the banks of the stream to the ocean and collected the trees and shrubs on the strips of beach nearby, they took the canoe and paddled up to the mangrove swamp to get fruit, leaves, and wood of this interesting, land-forming tree. No alligators were apparent; they were evidently expecting them by land.

The specimens of wood were each given a number and arranged in order on narrow shelves against the wall, with the fruits, flowers, and leaves just above them. As the collection grew, it was difficult to remember all the specimens and the same tree was sometimes collected twice.

William had such a mania for growing things that he started a nursery in the back of the garden and had each little tree marked with a stake bearing its

museum number. He said he just wanted to see how trees looked when they were little.

The following list contains the trees they found in the forest and on the seashore. Some of them, like mahogany and Spanish cedar, are very large

Fig. 37. Making cigar-boxes from Spanish cedar logs in a cigar factory near Havana.

and valuable timber trees, while others are no bigger than bushes and are not even good for firewood. The common names used may prove very mislead-

ing to people not accustomed to the tropics, but a few, such as holly, sumac, and catalpa, mean the same as they do in New York and Virginia.

Trees of the Forest and Seaside

Bayberry. The common bayberry of the eastern United States grows in the mountains of the West Indies and the wax-coated fruits have been used there for the manufacture of candles.

Birch. A common tree with thin, reddish bark, which splits into shreds like the birch of the United States, hence the name. It is used for fence-posts, because it readily takes root and becomes permanent. The wood is spongy and soft, although white and rather attractive.

Blolly. This tree has small leaves, brown, scaly bark, and pale-colored wood. The fruit consists of clusters of small red berries, which are oblong in shape, ribbed, and fleshy.

Bombax. A tree with smooth green bark resembling the linden in having a strong, fibrous inner bark which is used for clothes, strings, etc.

Byrsonima. A small tree which furnishes an excellent wood and its bark is used for tanning. The yellow, acid berries are sometimes eaten, although rather astringent.

Calophyllum. A handsome tree furnishing good timber and also planted for shade. The oil pressed from its seeds has been used in lamps.

Cat's-Claw. A small tree or shrub with spiny branches growing in sandy soil. The pods are much twisted, the beans dark-brown and shining. A section of the trunk shows a strong contrast between the bright-yellow sapwood and the red or purple heartwood.

Chinese Tallow Tree. This tree resembles the poplars of the eastern United States. The fruit is a capsule containing three large seeds, which are coated with wax.

Cocoa Plum. A small tree or shrub with pink or black fruit about the size of a large plum, which may be eaten raw or made into preserves. It was a favorite fruit of the Carib Indians. The seeds are very oily and are strung on sticks and used as candles.

Comocladia. There are several kinds, all with poisonous juice similar to that of poison ivy, and the leaves of most kinds are armed with pointed teeth.

Corkwood. This tree furnishes the lightest of all woods, lighter even than cork and much used by fishermen for their nets. The wood is not attacked by insects. The fibers around the seeds are used

for pillows and mattresses, so that the tree is sometimes called the down tree. In South America, it is called balsa.

Dogwood. A coastal tree with very durable wood, used for boat-building, charcoal, and fuel. The bark of the roots was used by the Carib Indians to stupefy fish so that they might be easily caught. This tree is not at all related to the dogwood of the eastern United States.

Ebony. The wood is colored like mahogany. The pods are much twisted. The true ebony is an entirely different tree, related to the persimmon.

Geiger Tree. A small tree planted for ornament because of its funnel-shaped, orange-colored flowers and white fruit.

Horsebean. This striking little tree is cultivated for ornament, and for fodder for goats and other domestic animals. The twigs are yellowish-green, zigzag, and spiny; the leaves are long and narrow with small leaflets.

Inkwood. A reddish-brown, heavy wood used for the handles of tools, boats, and piles for docks.

Joewood. A small tree with deliciously fragrant flowers.

Lace-Bark. This pretty little tree has inner bark resembling lace, which is used for ropes, whips, dusting brushes, handkerchiefs, etc.

Large-Leaved Sea Grape. This tree is remarkable for its leaves, which reach the enormous diameter of three feet. The wood is very durable and fence-posts made of it will last for a hundred years.

Lignum-Vitae. There are two species, very much alike, both having blue flowers. The fruit is a capsule which becomes orange when ripe. The wood, which is heavier than water, is light-yellow to greenish, with black center.

Live Oak. The same tree that occurs in eastern Virginia and farther south. The light-colored wood is valuable. The acorns resemble those of the white oak, but are very small, pointed, and enclosed in deep, attractive cups.

Mahogany. This large tree is well known because of its valuable wood. The fruit resembles a large hickory-nut in the husk, but splits at the bottom instead of at the top, and is full of winged seeds like those of the maple.

Manchineel. A coastal tree with fine wood and a very poisonous milky juice, which was used by the Carib Indians to poison their arrows. The apple-like fruits are also acrid and poisonous. Much has been said about the danger of sleeping in the shade of this tree on account of the poisonous juices in the leaves, but the accounts have been much exaggerated.

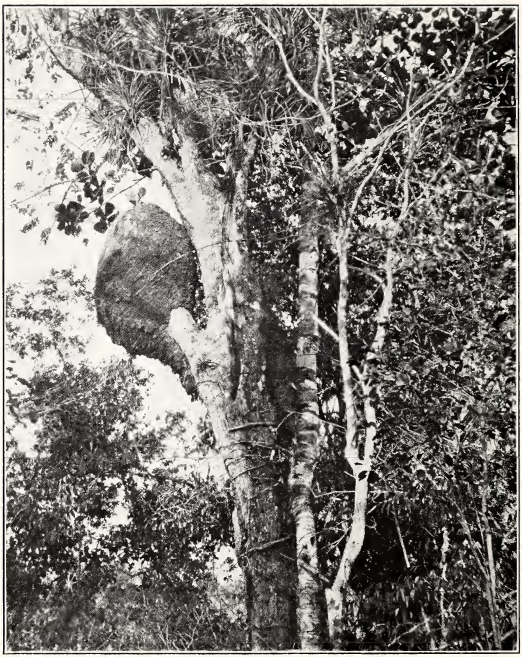


FIG. 38. A tragedy in the forest. A young monkey apple tree is killing an older tree on which it has fastened itself. The large black mass on the old tree is a white ants' nest, and just above it are some air-plants.

Monkey Apple. A shrub or tree parasitic on other trees, which it often kills. The wood is used for fuel only. It yields a resin which has been employed in the treatment of rheumatism. The gummy milk of a closely related species, called the balsam tree, is sometimes used for the treatment of wounds and insect bites. Also called Scotch attorney.

Paritium. A large shrub or tree containing beneath its outer bark a strong and flexible fiber much used for ropes, mats, and other purposes. The flowers are very large and the leaves are heart-shaped.

Pine. A tree with very resinous, dark-orange wood, resembling the pitch pine of the United States.

Poisonwood. This tree is related to our poison sumac but is much larger, reaching forty feet in height. It contains a very poisonous sap. The wood is heavy and hard. It yields a gum used in medicine.

Princewood. The wood is rose-colored and very valuable. The bark was once used in treating fever, before the use of quinine became general.

Red Cedar. The Barbados red cedar, which is very much like the red cedar of the eastern United States, occurs on mountain slopes and its wood has been very extensively used for lead pencils.

Sea Grape. A very interesting shrub or tree of the buckwheat family, which is abundant on the coast. The wood is used for furniture and fuel. The branches are jointed like the Japanese knotweed and covered with brown, thin bark mottled with paler areas. The leaves are large, sometimes reaching eight inches in diameter, and are often broader than long. The greenish-white flowers are followed by long, grape-like clusters of rounded fruits containing a juicy pulp and a hard seed. These fruits are too astringent to be much eaten unless very ripe.

Seaside Mahoe. A small tree resembling the rose of Sharon. The large flowers are yellow with purple base, becoming entirely purple by the end of the day. The wood is used for boat-building.

Seven-Year Apple. A tree fifty feet high with a straight trunk and soft, light-colored wood, somewhat resembling the ash. The fruit, which hangs on the tree a long time, is four to six inches long and ovoid in shape. It is used for marmalade and also for making a refreshing drink.

Soapberry Tree. A tree about forty-five feet high, which prefers sandy soil. The fruits are round, about an inch in diameter, with orange-brown pulp and black seeds. The watery juice of the fruits has been used as a substitute for soap.

Spanish Cedar. A large forest tree yielding a very valuable wood used for the manufacture of cigar-boxes, moth-proof chests, and other purposes. The wood has a pleasant, lasting odor, and is never attacked by insects.

Tallow Tree. The seeds are covered with a waxy layer which has been used for candles.

Tree-Blueberry. A tree thirty feet or more in height, growing in the mountains. It differs from the northern blueberries chiefly in size.

Trumpet Tree. This tree has leaves resembling those of the horsechestnut and the bark furnishes a strong fiber which is used for ropes. The hollow stems have been made into wind instruments, while the wood easily ignites when rubbed and has been employed for starting fires.

Whitewood. A small tree growing in sandy places, having small leaves and rounded red fruits.

Wild Cotton. A small tree or shrub closely related to the cotton ordinarily cultivated. The flowers are creamy-white except at the purplish base, at length becoming pink.

Other Wild Trees Deserving Mention

Black bead
Bitterbush
Bucida
Bustic
Buttonwood
Cockspur
Crabwood
Dahoon holly
Eggfruit
Fiddlewood
Jasmine tree
Lancewood
Locust berry
Mastic
Nakedwood
Paradise tree
Potato tree
Saffron plum
Satinleaf
Satinwood
Southern sumac
Spicewood
Stopper
Strongback
Tallowwood
Torchwood
West Indian catalpa
West Indian cherry
Wild cinnamon
Wild dilly

CHAPTER XIX

A Christmas Tree

Our young collectors went one day to the coffee plantation to get specimens of the coffee tree, and found nearby some red cedars very much like those at home. Of course, they were glad to get the new tree for their museum, but it started them to thinking and talking about other things.

"We found a Christmas tree up on the mountain today just this side of the coffee patch," William reported to Edna on their return.

"They don't have any Christmas down here," replied Edna. "It's not possible without snow."

"William and I have been talking this over," interrupted Henry, "and we thought it would be nice to put all our birthdays together and pretend we were all born on Christmas day and have a big celebration, with presents and a fine dinner and a good time in general."

"And Snowball and the monkey would enjoy it so," added William.

"When would we have it?" asked Edna, much impressed by the reference to Snowball.

"O, just any time we get ready," Henry replied. "We don't know when Christmas comes, or any of our birthdays, so one day is as good as another. We picked out a lovely tree."

The next few weeks were busy ones, and somebody was always hiding something. To Snowball, it was to be a big surprise. Finally, the wonderful day arrived, when everything was ready. The tree was set up under the royal palm opposite the table and decorated with candles, pine splinters, and the accumulations of weeks in the form of presents and good things to eat. No other Christmas tree ever bore such a queer and motley load; and but few were ever more appreciated.

Henry dressed up the best he could as Santa Claus and tried to keep cool while he distributed the presents. Edna had on her finest laces and beads. William could hardly keep his eyes off of Snowball, who exhibited the most varied and expressive emotions; while the monkey danced about the tree and chattered with glee.

Far into the night, the candles burned and the revelers made merry.

Next morning, William got a long stick, cut a notch in it at one end, and stood it up in the corner. "That's our birthday stick," he said. "When I get

three hundred and sixty-five notches cut, we'll have another celebration. And, to be sure I don't forget any, I'll cut a notch on the other side every time the moon changes: fifty-two weeks and thirteen lunar months make a year."

For two days the tree stood under the royal palm and Snowball and the monkey looked up to it as the source of everything good. On the morning of the third day, a crash was heard, mingled with howls and bawls. The monkey had become impatient and had climbed up to get some candy from one of the limbs and Snowball had followed him. All that unexpected weight on one side was too much for the tree's equilibrium.

Musical Moments

The boys made whistles and flutes of bamboo and the trumpet tree, and an instrument of deeper tones from a gourd with a long neck. Edna accompanied them on her comb, until they finally succeeded in making her a banjo, with strings of twisted fibers heavily coated with wax and pine resin. A conch shell from the beach completed the orchestral outfit. Snowball tried to sing, anxious to do his share, but he had to be stopped to prevent the monkey from howling.

"This is almost as good as a movie," said Henry, as they were sitting around the torch light after supper one evening playing some of the old songs.

"I reckon the movies would pay us well if they could get us just as we are," replied Edna.

"Shall I put out the light?" inquired William an hour later, when he caught Henry yawning.

"Yes," said Edna, "and let's look at the stars awhile. I think the sky is just beautiful tonight. Do you know any of the constellations?"

William did know a few, which he took the greatest pleasure in pointing out to Edna. Then, far away to the south, he saw one he had heard about but had never hoped to see, the beautiful southern cross. After Edna went to her room, she stood by her window gazing at it, while she breathed a prayer that they might be kept safe and be returned to their friends before very long.

CHAPTER XX

Edna's Fernery

Edna's fernery was built of stones in the shade of the house and the pockets were filled with rich leaf-mold. The boys helped her with the rough work and she dug up the ferns in the woods and planted them. Never before did she have any idea that there were so many different kinds of ferns. There were big ferns and little ferns, in wet places and dry places, on rocks and soil and the bark of trees, and each wanted a place in the fernery just like the one it lived in.

She began with the rock-loving ferns, then put the big ones that needed deep soil in front of her rockery and finally brought in the sun-loving ones and planted them farther out in the yard. All had to be watered, some more than others, while a few died and had to be replaced. New ones were found, too, on many of her walks, and the boys brought her a beautiful tree-fern from far up the mountain side, which she received with delight.

Among all her ferns, Edna saw very few that she had seen in Virginia. One of these was the royal

flowering fern, its long leaves tipped with clusters of tiny green balls, which became brown and dusty with age. Another was the resurrection fern, that lives on trunks of trees and curls up in dry weather and opens out fresh and green after a rain.

FIG. 39. A tree-fern in a tropical forest.

The bracken fern grows everywhere, so it was not surprising to find it there, in dry soil in the blazing sun. The maiden-hair, however, looked different from the one at her home, being much more delicate and having smaller leaflets.

The others she did not know, but they were beautiful just the same—filmy-ferns, holly-ferns, leather-ferns, polypodies, serpent-ferns, strap-ferns, climbing-ferns, grass-ferns, spleenworts, halberd-ferns, and tree-ferns—all differing in the shape of their wonderful fronds and showing the most delicate shades of green.

A Tadpole Stage in Ferns

Edna imitated William's example and planted the "seeds" which she found on the under sides of her ferns, but was disappointed in the results. Nothing came up except some tiny little green things that were flat and shaped like a heart, and she pulled most of them up for weeds. What was her surprise, a week or two later, to find a pretty little fern growing from one of these "weeds!" She watched them closely after that and decided that ferns pass through a kind of tadpole stage and that the little heart-shaped growths correspond to the tail of the tadpole.

Edna's conclusions were not far from correct.

The fruit on the back of fern fronds consists of spores instead of seeds; and these spores grow into little heart-shaped prothallia, which produce the true fern plants again. True seeds have little embryo plants tucked away inside of them, and when they are planted these embryos simply have to grow up to be just like their parents.

CHAPTER XXI

More Discoveries

While William was gathering pine-knots on the mountain one afternoon, he disturbed a scorpion's siesta, and, not being one of those fortunate, immune persons who can handle scorpions with impunity, he was stung on the tip of his finger.

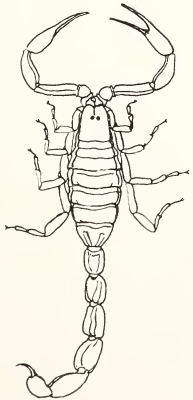


Fig. 40. The scorpion. Notice the sting at the lower end, looking like a cat's claw

Of course, he smashed the scorpion first, before attending to the sting, which he treated like a rattlesnake bite. Wrapping a cord tightly around his finger, he opened the wound with his knife and squeezed and sucked out the poisoned blood. The finger swelled a good deal, but in a few days it was all right again.

Before killing the little pest, he could not help noticing how it held up its "tail," with the poison fang on it, and moved it about above the rest of its body as a duellist would guard himself with his sword.

Logwood Honey

A more interesting discovery was made while the boys were cutting a new tree for their museum. It proved to be hollow and burst open when it fell, revealing a store of honey and a swarm of bees. Returning after dark, they smoked the bees into a newly constructed hive and took them and their honey home in triumph. This was the beginning of bee-farming, with all its excitements and pleasures. The bees found the flowers about the house attractive, but seemed to like the logwood trees best.

Snowball is Rescued

Snowball had been discovering the alphabet, with Edna's help, for over an hour and he decided to run

away and have a little rest from the monotony of school life. So he wandered off alone through the fields and finally fell into a hole, which was too deep for him to climb out of. After trying many times and shedding many repentant tears, he fell asleep from sheer exhaustion.

Meanwhile, the monkey, becoming nervous because of Snowball's long absence, hunted for him everywhere about the house and then set out for the guava trees. Later, he returned and kept pulling at Edna's arm until she followed him to the hole where Snowball was imprisoned.

Edna took the monkey by one hand and with the other he reached down and caught Snowball's hand, —and so the little truant was rescued. It was very amusing to Edna, although she couldn't show it, to see the walls of the hole covered with big marks intended for the letters of the alphabet.

Exploring a Cave

A cave was discovered by the boys on one of their tours along the bank of the stream, and they could not rest until they had brought torches and explored it. At first, they were startled by a peculiar, rushing sound, which proved to be only bats, that were present in large numbers.

Fig. 41. Indian relics found in Tennessee.

The cave contained beautiful stalactites and stalagmites, caused by the dripping of the water from the roof, while on the floor were heaps of shells, bones, pieces of pottery, stone implements, and other relics such as are found where Indians have lived. There were carvings on the walls, however, and terra cotta images on the floor, which indicated relationship with the ancient Mexican tribes rather than with those in the eastern United States.

It seemed wonderful to Henry and William to be standing in the home of a vanished race, looking at their handiwork on the walls, judging from the remains what they had eaten for dinner, and even gazing at their bones. The place proved so interesting that they decided to begin a museum of archaeology and to collect all the Indian relics they could. Henry even made rough sketches of some of the drawings in his note-book.

"Why not let this be the archaeological museum?" said William. "Then we wouldn't have to carry all these things home. Besides, it might injure them. Whatever else we find, we can bring here."

Henry readily agreed to this proposition and the boys went home as fast as they could to tell Edna about it. It was not many days before the whole family came on a visit to the new museum. The

monkey could not see anything but the bats; Snowball got frightened and would not budge five feet beyond the entrance; and Edna, while appreciating it all, said she was very glad they didn't have to live there.

Among the later additions to their archaeological collection, was the fossil skeleton of a ground sloth, an extinct animal about the size of a black bear.

CHAPTER XXII

Trees Found in the Fields

After completing their collection of the forest trees, the boys began to study those found in the open fields and along the edges of the woods, many of which had been planted, while others had grown from seeds accidentally scattered. One would naturally expect most of these trees to be of special value and to be distributed throughout tropical regions generally.

The oranges and their relatives appealed to them first, because they were old friends and so beautiful. The common sweet orange, the blood orange, the tangerine varieties, and the small plum-like kumquats were all admired and enjoyed. The big bitter, or sour, orange so much used for marmalade was sometimes tried for lemonade, but this was not at all necessary where limes and lemons were so abundant. The sweet lemon and large rough lemon were new to them. Grape fruit was common, and there was one citron tree, with the large fruits so familiar to children about Christmas time in the form of thick, candied rind.

Other interesting trees are briefly described in the following list:

Ackee. A large, cultivated tree with yellowish or reddish fruits, which split into three parts, showing the black seeds and cream-colored pulp. This pulp when cooked in a fresh condition is considered a very choice delicacy.

Fig. 42. Fruit and foliage of the ackee.

Algaroba. Usually grown along the roadsides for shade. The pulpy pods are used as food for cattle. It yields one of the best woods.

Allspice. This spice, combining the flavors of various spices, comes from the pimento tree, which is planted in rows like an orchard. The berries are

Fig. 43. A pimento grove.

gathered before they are ripe and dried quickly in the sun, becoming reddish-brown. Parrots often wantonly destroy a part of the crop by cutting off the clusters of green fruit.

Annatto. A small, handsome tree with large,

heart-shaped leaves and pink flowers, which are followed by bur-like pods about an inch in diameter, changing from green to deep-red with age. These pods, which suggest small chestnut-burs, contain the bright-orange seeds used for coloring rice, soup, and other dishes and for the manufacture of a coloring-matter for butter.

Australian Corkwood Tree. Cultivated for shade and for its large white or red flowers. The flowers and green pods are often used as a salad or pot herb. The wood is of little use.

Bay-Rum Tree. A small tree, producing an excellent wood. The leaves have the odor and taste of lemon.

Beefwood. Grown for shade and ornament. The light-colored wood makes good fuel. The twigs are jointed, and the bare, scale-like leaves suggest the ordinary scouring-rush. The fruit is rounded, about half an inch in diameter, and bursts open when ripe in many cracks over its surface, allowing the tiny winged seeds to escape.

Calabash. A small tree with straggling branches and large, melon-like fruits, which are from six to fifteen inches in diameter and round or oblong in shape. The wood is used for chairs and other furniture, while the pulp of the fruit is considered a

good cough medicine and is also used for poultices. The fruits, when ripe, are of great importance, being used for buckets, bowls, and all kinds of domestic utensils. In some places a musical instrument is made by cutting a number of slits in the rind and playing on them with the end of a stick.

Camphor Tree. Grown for its important gum and also for shade. The camphor is distilled from chips taken from the roots and lower part of the trunk of large trees.

Cashew. A tree related to the poison ivy and grown for its fruits, which contain most of the poison and must be roasted before being eaten. The nuts are sometimes scraped and rubbed on the face to whiten the skin. The face swells, blackens, and peels, but in about two weeks a new complexion is produced. A gum from the trunk makes a good mucilage when dissolved in water and has the advantage of keeping away insects. The wood is valuable.

China Tree. Cultivated for shade and ornament. The seeds are used for beads.

Cinnamon. The dried inner bark taken from shoots of the cinnamon tree, which grows wild in the forests of Ceylon and is extensively cultivated. The Arabs first collected and sold it, but kept its origin a secret for hundreds of years.

Cloves. The unexpanded flowers of a species of myrtle, a small evergreen tree which is aromatic in all its parts. The buds are first cleaned and dried, then darkened by smoking them over a wood fire.

Flame Tree. This large, wide-spreading tree is cultivated as an ornamental. The leaves are large and feathery. The flowers are borne in clusters and are nearly three inches long, four of the petals being scarlet and one white with orange spots. The ripe pods are of immense size, about two feet in length.

Fustic. The wood is yellow and yields a yellow dye.

Golden Fig. This tree begins as a parasite, sprouting in the cracks of other trees and the roots growing down until they reach the ground, when they form new trunks like the banyan. It makes an excellent shade. The fruits are yellow or red.

Guava. A small tree with rough bark and brown or reddish wood, which is heavy and strong. The flowers resemble cherry blossoms. The fruit is round or pear-shaped and two or three inches in diameter. The famous guava jelly, so well known in the West Indies and on ships touching at West Indian ports, is made from the fruit of this tree.

Hog Plum. This tree is much used for fence-posts, which begin to grow as soon as put into the

ground and thus become permanent. The fruits are egg-shaped, one and a half inches long, with a pleasant acid pulp. The name refers to the fact that hogs are very fond of this fruit and fatten on it.

Horse-Radish Tree. The name is derived from the taste of the root. The pods, which are long and straight, are eaten as vegetables and are also pickled. An oil made from the winged seeds is used by watch-makers.

Fig. 44. The Prado, a famous parkway in Havana. These beautiful laurel trees were all destroyed by a hurricane.

Indian Almond. Cultivated for shade and ornament. The fruits, which are edible, are very much like true almonds. A dark dye is made from the bark and also from the leaves, which become highly colored with age.

Fig. 45. A logwood plantation.

Lead Tree. A very common tree with pods like those of the locust, only larger, containing brown, hard seeds. The flowers are in round clusters like those of the acacia. The beans are used as beads

and other ornaments. Horses feeding upon the foliage lose their manes and tails, and even their hoofs.

Logwood. A very crooked, irregular tree of medium size, with hard and heavy wood, which is at first reddish-white, becoming dark-purple after it is cut and exposed to the air. The logwood of commerce is obtained from the roots and lower part of the trunk. Trees that are too old lose some of their value, and some trees have been found to be entirely without coloring-matter in their wood.

Nutmeg Tree. A small tree with aromatic leaves, covered with yellowish-green fruits about the size of a peach. The shell, when ripe, splits off in two pieces, revealing a nut covered with a thin reddish membrane, called the mace. On cracking the nut, the kernel comes out whole and proves to be the nutmeg. Nutmegs are packed in lime to preserve them and prevent them from sprouting.

Papaya. This small and valuable tree begins to bear fruit when a year old and produces from twenty to a hundred large, melon-shaped fruits at a time. The dark-green leaves, twenty to thirty inches in length, are clustered at the top of the trunk. The fruits are yellow within, agreeably sweet, and contain many jet-black seeds. Both the fruit and leaves contain a pepsin-like principle which greatly

Fig. 46. A papaya orchard near Miami, Florida.

aids digestion and renders tough meat tender. The juice is also used for curing warts and wounds, and the leaves have been employed as a substitute for soap.

Pomegranate. A small tree or shrub with scarlet flowers and large, rounded fruits. The wood has been used for engraving as a substitute for boxwood. The pomegranate is cultivated chiefly for its flowers. The fruit has a thick skin, often brilliant red, and amber-like seeds surrounded by pulp.

Sand-Box. Grown for shade along roadsides. When working the lumber, carpenters have to put gauze over their faces to prevent the poisonous dust from irritating the nose and mouth. The ripe fruit splits open with a loud report, allowing the loose seeds to escape, hence the popular name, monkey's dinner-bell.

Sapodilla. The highly esteemed fruit of this tree is round and two to three inches in diameter, with sweet flesh and milky juice. The wood is hard and strong. A valuable gum, called "chicle," much used for the manufacture of chewing-gum, is made from the milky juice of the trunk or the fruit, by evaporating it down.

Silk-Cotton Tree. A tree of immense size with buttressed trunk and wide-spreading branches,

FIG. 47. Sapodilla fruits and foliage.

which furnishes excellent shade. The wood is soft and white and suitable for interiors, but is more commonly used for dug-out canoes. The spines which occur on the bark of young trees fall away with age. The fruit-pods contain seeds covered with numerous silky fibers, which are used for beds and pillows. Another name for this tree is ceiba.

Sour-Sop. A small tree well known for its large, acid fruits, which have a rough, green skin and a juicy, white pulp, used for flavoring beverages or ice-cream.

Fig. 48. The tamarind tree.

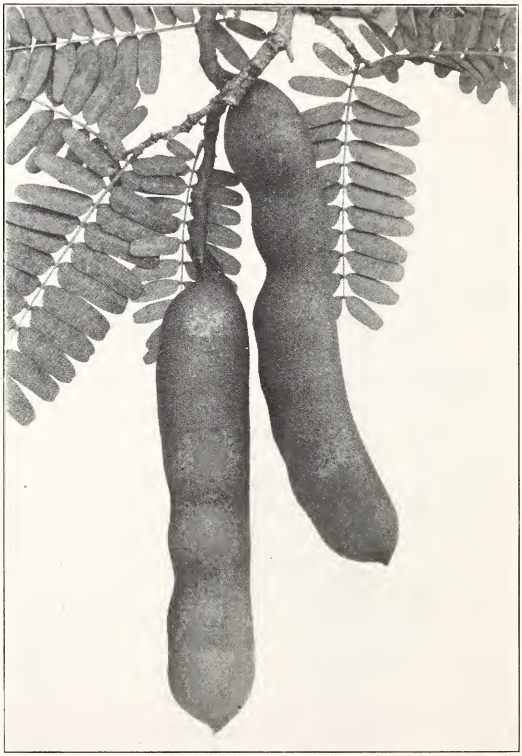


Fig. 49. Tamarind fruits.

Tamarind. The true tamarind tree has many small, compound leaves and swollen, fleshy pods which do not split open at maturity. The flat, reddish-brown seeds, numbering from one to four in a pod, are surrounded by an acid pulp which is used for cooling drinks. The preserved fruits of the tamarind are used as a drug.

Woman's-Tongue Tree. Cultivated for shade. The wood is brown and heavy. The pods when dry are continually rattling.

CHAPTER XXIII

Fixing up for Company

There were many little things that had been neglected about the house while the tree studies were in progress, and, besides, many things were wearing out and had to be replaced. A few new conveniences, also, had long been in the minds of of the boys, who thought they might as well take a week or two now and put everything in first class shape before starting their menagerie.

They made tables, chairs, and other furniture of bamboo and some of the prettiest woods; baskets of various sizes and shapes of split reeds and strips of palm leaves; matting of rushes, corn husks, and the leaves of several palms; dishes, forks, and spoons of shells, wood, cocoanuts, calabash fruits, and gourds; ropes and strings of lace-bark, bombax, agave, yucca, wild cotton, and other fibers; beds of Florida moss; pillows of silk-cotton; and hair-brushes of cocoanut fiber.

Better and more comfortable clothing was made from bombax and lace-bark; while many beautiful beans had been discovered and collected for Edna's

necklaces, among them sea-beans, Job's tears, a large bean half red and half black, and a dainty little coral-red one with a black face.

To match Edna's beads, the boys made canes for themselves of orange, bamboo, cocoanut, mahogany, and other woods—at least one for each day in

Fig. 50. A tree covered with gray Florida moss, which waves in every breeze.

the week. They even put a hat on the monkey and taught him to walk with a cane.

A fine bucket for Snowball, the water-carrier, was made from a calabash gourd a foot long, the top being cut open so as to leave a handle; and a smaller gourd was cut into a work-basket for Edna, with the sides carved in an ornamental way. Two new cocoanut dippers were made, one for the house and one for the spring.

Edna had long needed a box in the spring branch where she could keep things cool, especially the cocoanut milk, fruit punch, and other pleasant drinks which she always tried to have in abundance; so this was finished next in order and a roof built over it to keep the cocoanuts from falling on it at night.

Flower pots were cut from big bamboo poles and filled with orchids and other plants for the windows and tables. For a few days, a big pineapple plant stood on the center of the dinner table, ripening its cone-like fruit, but Edna's better taste finally banished it to the field where it belonged. She did not object, however, to having bunches of cat-tails and giant sea-grape leaves a yard across on the walls of the rooms for decoration.

Henry made a sun-dial and marked off the hours

FIG. 51. A candy man of Puebla, Mexico, selling taffy and sugared cocoanut.

on it from his watch, after finding the mark for twelve o'clock when the sun reached the highest point in the sky. He also ran a north and south line from the north star and put up an arrow to show the way the wind blew.

William had a few little experiments he wanted to try: one of these was making rock candy. He had made it from white sugar and he followed the same method, boiling down the syrup until it was pretty thick, then setting it in a warm place with fibers hung in it. It was not long before he had the satisfaction of seeing the clear crystals of sugar gather on the fibers; and the family, including Snowball and the monkey, pronounced the experiment a success.

Then he took some salt and dissolved it in a little cold water and hung fibers in it in the same way. After awhile, he had pure salt crystals to exhibit.

Nothing remained now to be fixed except a little fencing, a break or two in the hedge, a leak in the roof, and a weak rail in the pig pen where the pigs had been rubbing their backs. When this was done, all the family went to the beach and took a good swim and lay in the warm sand until time for dinner.

"Tomorrow, the real sport begins," said William. "We are going to have large increases in our family!"

"I hope there won't be any decreases," rejoined Henry, having in mind the adventure with the wild boar.

Before William went to bed that night, he made Snowball a gourd drum, a trumpet-tree whistle, a little bow and some arrows, and an aeroplane kite out of two big leaves of the sea grape and a few bamboo splits. "I want Snowball to have some sport, too," he said.

The next day, after the drum had been cracked and the whistle broken, Snowball imagined that the monkey was a dangerous wild beast and began to shoot at him, which was the end of the bow and arrows; for the monkey carried them up into the top of a cocoanut tree and left them there, while he began to throw cocoanuts at Snowball.

The kite lasted a few days longer, but one day Henry heard a loud wail from the direction of the pig pen and found that Snowball had mounted to the top rail with his biplane and tried to fly, with the usual result. His face was scratched, his scanty clothing was badly torn, his feelings were hurt, and the biplane lay beneath him, a mass of ruins.

CHAPTER XXIV

Catching Wild Animals

The young trappers first built a large pen of heavy logs in the forest and made a gate for it that would close by stepping on a trigger after entering the pen, reminding one of the door that closed on Ben Hur in the mysterious palace. At first, wild pigs went in and ate up the bait but were too light to spring the trigger, so the bait had to be placed up high out of their reach.

Then a doe was trapped, and the gate closed on a little fawn and left it outside the pen. The fawn was too shy to be captured, but it followed its mother at a safe distance to her new quarters, and that night the boys left a little crack in the fence just big enough for it to get through. About a week later, a buck with four prongs was caught, thus completing the family. The deer soon became very tame and seemed to enjoy their captivity.

The next trap used was a pitfall; just a hole with steep sides, covered over the top with palm leaves and some tempting bait scattered about. The only

animals captured in the pitfall were wild pigs, and pork was already plentiful.

William then fixed up some rabbit traps out of hollow logs and set them along little trails in the woods. His first catch was a possum and the next

Fig. 52. A mother possum and her affectionate family.

a coon, which made him feel very much at home. The coon became a pet and had the run of the house, greatly to the disgust of the monkey.

Big iguanas, several feet long, and numerous smaller, brilliantly-colored lizards were easily caught

with nooses and nets and the latter made excellent captives because they caught most of their own food. The same was true of the little tree-toads, which earned their living and furnished music besides. The iguana eats fruit chiefly, and that is probably why he is so highly prized for food.

Fig. 53. The coon.

There were bats enough already in the cave, and rats and mice were common about the house and garden, while the agouti, a rat-like animal over a foot long, often eaten by poor people, was sufficiently abundant in the sugarcane field.

The boa constrictor gave them the greatest trouble. It was twenty feet long and very powerful, although sluggish and not poisonous. Instead of

Fig. 54. A boa constrictor.

bringing it home, they built a cage for it out in the woods where it was caught, and left it there. It was a case of Mahomet going to the Mountain. The juba, the blind snake, and other smaller snakes were kept there also, in separate cages, so as to have all the serpents together.

The giant manatee, which sometimes visited the

mouth of the creek, they could not manage; nor did they care to fool with the old alligators and crocodiles, but they had a whole pen full of crawling young ones, and a half-grown green turtle to keep them company.

Henry had once seen twenty big green turtles, weighing over three hundred pounds apiece, lying on their backs on the deck of a ship with their flippers tied together. He was told that they had made the journey from Yucatan to New York in that way and that six weeks or more without food seemed nothing to them.

Snowball and the monkey took great interest in the animals and always helped to feed them, because they loved to see them eat. They reserved the privilege, however, of pulling their tails and teasing them in various ways, which made the boys rather glad that the boa constrictor's cage was some distance off in the forest.

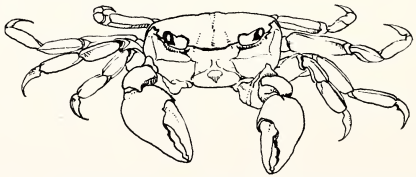


FIG. 55. The land crab. It has amiable eyes but wicked claws.

During a period of rain, a number of land crabs had been caught by torch light near the mangrove swamp and, after supplying several good meals, there were still enough left to fill a cage. This was one animal Snowball did not like. He did at first, but it took William and Edna, with the monkey thrown in, to separate that first crab from Snowball!

CHAPTER XXV

Birds

The whole system of trapping had to be revised for the birds. For the ordinary forest species, a bamboo cage constructed on the principle of a fly-trap proved very effective. For ground-feeders, like doves and pigeons, a coop-trap fitted with a figure four was used; while butterfly nets came in handy for hummingbirds and for all kinds of young birds just beginning to fly.

Wild turkeys were caught in a covered pen with a trench approach in which corn was scattered. They would keep their heads down while following the trail of corn and raise them up so high when they got in the pen that they could not see how to get out.

The birds that first attracted the attention of our young naturalists were the kinds they had seen at home. Some of these, like the kingfisher and the hawks, remained during the entire year, but most of them came down to spend the winter and went back early in the spring. Among these migratory birds were the following:

Ruby-throat hummingbird, olive-backed thrush, wood thrush, catbird, cedar waxwing, bobolink, mourning-dove, meadow-lark, bittern, killdeer, av-

Fig. 56. Sandhill cranes and their nest among the cat-tails.

ocet, godwit, Wilson's snipe, plover, great blue heron, mallard duck, green-winged teal, wood duck, and hooded merganser.

When the season arrived for these birds to return to their northern homes, those that were in cages were set free and allowed to go with the rest. The

Fig. 57. Caged birds for sale in Mexico City. The Indians buy them eagerly.

children were themselves prisoners and would gladly have flown home with the birds.

"Why not let them carry a message to our friends?"

said Edna, excitedly, as she opened one of the cages and let a wood thrush out.

"Why not?" replied William. "It might not do any good, and still it might. There is no harm in trying."

So they fastened a tiny message to a number of the birds in such a way that they would not be injured or impeded in their flight, and turned them loose with the hope that somebody would get a chance to read it.

There was a catbird that had been Edna's special pet, singing for her while she worked and making a terrible fuss when she paid too much attention to Snowball. When he was turned loose, he lingered near for several days and would come to Edna's window in the morning and wake her with a cheerful song. Finally, he too disappeared, impelled by the uncontrollable instinct that drove him northward.

But there were many, many birds entirely new to the boys, and it was exciting and pleasant work to observe their habits in the woods and fields and to study them at close range in the bamboo cages. After the nests were empty they were also collected for specimens.

The hummingbirds were a source of continual en-

joyment as they darted about the flower gardens and displayed their brilliant colors while hovering over equally brilliant blossoms. The long-tailed hummingbird, or doctor-bird, was the largest, and he shone resplendent in his emerald vest, velvet crest, and long tail-plumes.

The tiny vervain hummingbird would sit in the top of an orange tree and warble its sweet note for ten minutes at a time, then flutter about the orange blossoms for nectar and insects, looking a good deal like a hummingbird moth.

The smallest of all, the smallest bird in the world, was Princess Helena's hummingbird, a perfect little fairy only two and a quarter inches long, with metallic-blue back, white breast, and rose-red head. Its nest measures three quarters of an inch across the cavity and the eggs are one quarter of an inch in length!

The mango hummingbird was remarkable because the female was more brilliantly colored than the male. In all other hummingbirds, and in most birds, the reverse is true, since the female is in danger while on the nest and sober colors protect her from hawks and other enemies.

A pair of palm swifts built a tiny nest of silk-cotton, tillandsia down, and feathers, glued to the

under side of one of the royal palm leaves, and three little white eggs were laid in it. A larger, blackish-brown swift was seen, but its nest was not discovered. The common martin, with habits like those of the purple martin, was steel-blue above and pure-white below.

The palm chat, or palm sparrow, was eight inches in length, dark-brown and olive above, and yellowish-white beneath. It lived in colonies in royal palms, making large nests of big sticks, and ate fruits and insects. It was a very noisy bird; the whole colony would start and stop singing at the same time, as if by signal.

The honey creepers were small, active, and bright-colored. The banana quit caught insects in flowers as the hummingbirds did, and it was very fond of cactus fruits. The grackles were much like our crow blackbirds, and the two kinds of red-wing blackbirds differed from ours only slightly in color. The flicker differed in having a white rump thickly spotted with black. Chuck-will's widow, which ranges northward to southern Virginia, resembled the whippoorwill in habit but had a different call.

There were numerous pigeons and doves, many of them feeding on the ground in flocks. The scaled pigeon was an excellent game bird, although hard

to see with its dark, lead-colored coat and wine-colored head markings. One of the most interesting birds was the burrowing owl, which dug holes from five to ten feet long and laid seven to nine white eggs. The young made a noise like a rattlesnake.

The lizards were often caught by hawks, but it was strange to see a kind of cuckoo, called the lizard catcher, engaged in this business. It would remain perfectly quiet until a lizard got within range, then dart upon it and kill it. This bird was a foot and a half long, ashy-brown above, and ashy-white below, with a long, loud call.

Another cuckoo, called the blackbird or ani, lived in large flocks and ate cattle ticks. All the birds of a flock laid their deep-green eggs in one big nest, with layers of leaves between them. This bird can be taught to talk, like a crow.

The todies, of which there were several kinds, looked like miniature kingfishers. One kind made burrows in banks with its beak and laid white eggs exactly like small kingfisher's eggs. It was very tame and apparently lazy until an insect came near, when it would dart at it with the quickness of a hawk. The green tody, sometimes called robin, laid three or four eggs at the end of its burrow on a

heap of soft earth without any lining whatever to its nest. It was bright-green above, with crimson throat, and yellowish-white below. The wings were blackish, while the flanks showed tufts of pink feathers, and it made a whirring noise when it flew.

While William was visiting the pine grove on the mountain one day, he saw a flock of birds eating the seeds out of the pine cones. On creeping close to them, he noticed that they were crossbills and very much like the white-winged crossbill sometimes seen in Virginia during the winter, only their bills were heavier. It was interesting to see how skilfully they worked and how happy they were, feeding together.

The egrets, glossy ibis, and white ibis were handsome birds. The wood ibis was white with a bluish head and neck. It had the peculiar habit of dancing in the water to muddy it and make the fish come to the surface, when it would catch them.

One of the queerest birds of all was the snake bird, which was well named because it was a yard long, including its very slender neck and tail. It was greenish-black above, black below, and lived on fish, for which it could dive at least a hundred yards. Its nest was built of sticks and leaves in swamps, and it laid from three to five bluish eggs.

The frigate, or man-o'-war, bird, with long bill abruptly hooked at the tip, was a terror to gulls and terns, which it would rob of their hard-earned catch, never ceasing the chase until the fish was dropped.

Fig. 58. The man-o'-war bird.

Fig. 59. A colony of flamingoes.

Flamingoes, resplendent in delicate pink, lived in great colonies along the beach and made their peculiar mud nests just high enough to keep the water from their eggs. The boys were surprised to see them sitting on the nests with their legs folded under them instead of hanging down as pictured in the geographies. There were only two eggs to a nest, pure-white and over three inches long.

One of the greatest surprises was a pair of guineas in the coop-trap one morning. They had evidently run wild into the woods, as guineas have a habit of doing, and it was now the pleasure of our young explorers to bring them back to civilization again. William also reminded himself that he could teach Snowball how to fight Easter eggs, and wondered how a little freckled guinea egg would stand up in a battle with a big white flamingo egg.

Some Other Birds That Were Seen

Small gray gnatcatcher, wood pewee, large flycatchers, gray kingbird, vireos, warblers, barn swallows, mockingbirds, mangrove cuckoo, belted kingfisher, trogon, red-headed woodpeckers, ivory-billed woodpeckers, parrots, plovers, crows, ground dove, quail dove, white-winged dove, pea-dove, blue pigeon, bobwhite, wild turkey, terns, coot, pied-billed

grebe, black-capped petrel, yellow-billed tropic-bird, crane, gull, sandpipers, black-crowned night heron, great white heron, turkey buzzard, duck-hawk, pigeon-hawk, sparrow-hawk, everglade kite, short-tailed hawk, sharp-shinned hawk, short-eared owl, barn owl, and stygian owl.

CHAPTER XXVI

Insects and Their Relatives

With such a large family of birds to feed, the capture of insects became a necessity. This was done with sweeping nets in rather a wholesale manner and the catch picked over for specimens before the birds were fed.

Butterflies were taken with care, so that their delicate wings would not be injured. The boys became very expert in the use of the net and in stalking their game. There are tricks in all trades, which only experience will make perfect.

Caterpillars were carried home and fed on the same kind of leaves they were eating when found, until they went to sleep in cocoons or queer, ornamented cases and emerged as beautiful moths and butterflies, ready to sip nectar from every inviting flower. This method gave perfect specimens and no end of pleasure for all the members of the family.

At night, around the torch light, hundreds of moths, beetles, and other insects collected and were easily caught. Sugaring for moths was practised on

the bamboo pole holding the pine knots, the surface of the pole being smeared bountifully with sugar syrup.

There was one little cricket that was very hard to catch. It lived about the house and chirped almost continually after dark, but, when they came near, it backed away in a crack, waving its very long antennae by way of farewell.

It was at first rather exciting to hunt scorpions, centipedes, and tarantulas, but there was little danger after their habits were learned. The boys sometimes took Edna along at night to catch fire-beetles, which, with two big luminous spots on their heads, lighted up the fields like thousands of tiny candles. Three of these beetles in a bottle or a little cage would furnish light to read by, while a dozen would make a pinguin ball-gown shine resplendent.

Butterflies

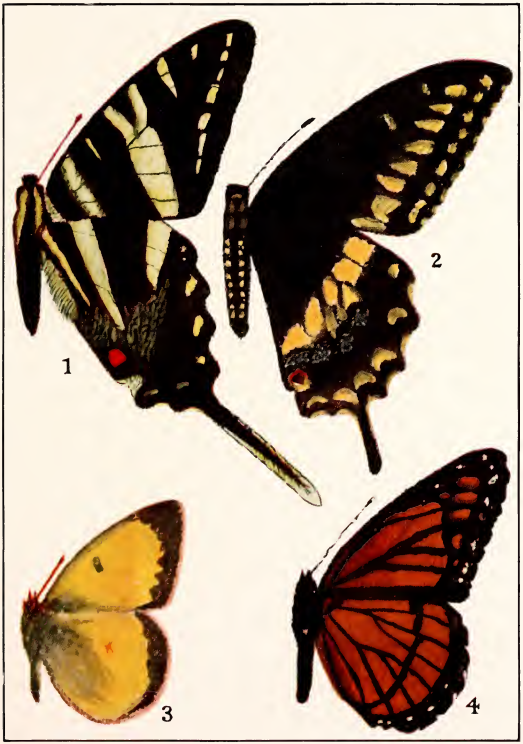
Butterflies, or "flutterbys" as Snowball called them, liked the daylight and rested with their wings erect, while their antennae showed little knobs at the tips.

Moths loved the darkness and folded their wings flat when at rest, and their antennae were often very delicate and feathery, as though fitted for some sort of wireless telegraphy.

There were three butterflies that William had seen in Virginia. One was the large, brick-colored milkweed butterfly, another the white cabbage butterfly, and a third, about the size of the cabbage butterfly, was yellow, and collected in numbers in wet mud and sand. He discovered one that looked like the milkweed butterfly, but it had a broad dark band on the margin of the hind wing. He also saw a yellow one a good deal larger than the one with which he was familiar.

One of the most interesting new kinds had peculiar, long, narrow, yellow and black, transparent wings; and the birds would not eat them any more than they would the milkweed butterfly. They were brilliantly colored and conspicuous, but seemed to have some peculiar charm that protected them.

Victorina collected by the hundreds on rotting mangoes and sucked their juice; dione liked vanilla; black page loved the hot sunshine fully as much as the butterflies farther north; while cracker had a peculiar habit of resting with its wings folded flat on a tree trunk like a catocala moth, or underwing, and crawling around to the opposite side like a squirrel when the boys came toward it. Sometimes, there would be nearly a dozen cracker butterflies on the same trunk and they would almost jostle one another in their haste to get around.



1, 2. The zebra and black swallowtails of the United States.

3. The mud-loving butterfly of the United States and the West Indies.

4. The viceroy, which protects itself from birds by mimicking the milkweed butterfly, although much smaller.

Then there was flam-flam, and donkey eyes, and zebra, but not the zebra William knew. The black swallowtail had an unfamiliar yellow band across its front wing; while the only skipper seen had brownish wings, a blue back, and long blue tails. Chiladés, syntarucoides, eurema, kricogonia, acolastus, hesperia, anastrus, padraona, calpodes, and niconiades completed the list.

Moths

First of all, William recognized his enemy of the tobacco fields, the big tobacco-fly, hovering about the Jimson weeds at dusk. Resembling this in shape and habit, were the frangipani sphinx, the blue-green sphinx, the brownish-yellow sphinx, and the green sphinx.

A beautiful little moth with rose-colored hind wings and narrow, white front wings covered with orange and black dots, reminded him strongly of one he had seen in the fields at home; but there were two little new ones that seemed even prettier. One had a blue body and crimson wings with blackish borders, while the other was blue all over except for a white bar across its front wings.

A handsome moth visited the sapodilla trees; the sugarcane was attacked by a borer which turned in-

to the sugarcane moth; the coffee leaves were mined by tineid larvae; crotalaria suffered from the crotalaria moth; and vegetables from army worms and cutworms.

Other moths collected were: pilocrocis, syngamia, epitamyra, galasa, mapeta, carcha, melanchroia, thysanopyga, syrrhodia, semiothisa, attacus, bleptina, bibacta, macrodes, bendis, remigia, erebus, letis, homoptera, and aclytia.

Other Insects

A small red ant with a powerful bite sometimes waked the boys up at night. Ants came into the kitchen hunting for sweet things, and even cut the leaves off the trees. White ants attacked most kinds of wood. Mosquitoes, sand flies, jiggers, and fleas had their off seasons, but cockroaches were always present and always hungry. The boys threatened to make boxes of Spanish cedar or red cedar to sleep in, thinking thus to escape the insects.

Grasshoppers, katydids, crickets, and mole crickets were common. Also a peculiar kind of praying mantis, called the pimento horse, with body and upper wings the color of a twig and the under wings bright-green like a leaf. It was almost impossible for a bird to see this queer creature because it looked so much like the twig on which it rested.

A large cicada, called the singer or old witch, was much like the jar-flies at home. A little red lady-bird and a white grubworm looked ever so familiar, while hundreds of other beetles were new.

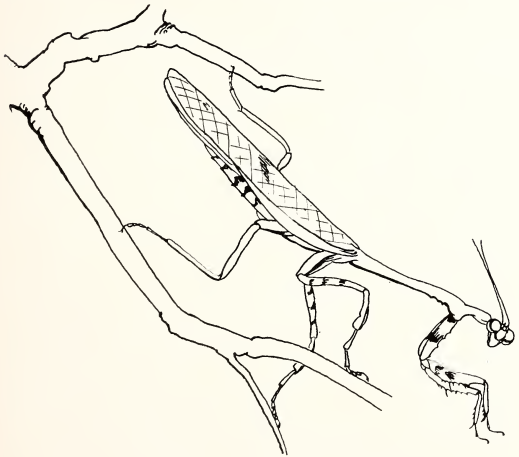


Fig. 60. The praying mantis, or pimento horse.

Spiders

Henry noticed that spiders had eight legs while the true insects had only six. He took much more

interest in them after he discovered the silk-lined burrow of the trap-door spider, and he must have collected at least a hundred different kinds.

One was entirely green, and one looked like the argiope so common in flower beds about New York; while a third was black with a bright-red spot on the

Fig. 61. A beetle which attacks cocoa trees.

under side of its body, reminding him of what his teacher had once said about spiders: "None around here are considered poisonous, but the black one with a red spot has a bad reputation."

One day Henry found the most remarkable spider web he had ever seen. It was nine feet wide, seven feet high, and a yard thick; and each one of the hundreds of females in the big web had a special web of

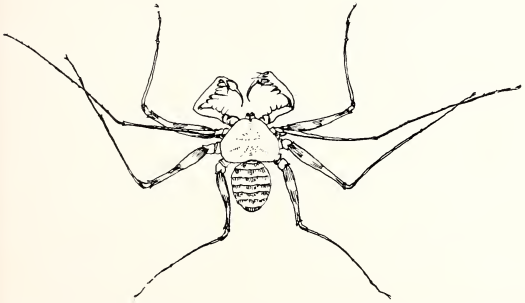


Fig. 62. A black spider found in Jamaica. Two of its legs were unlawfully long and had to be amputated.

her own, while all the little males were huddled down in one corner to themselves. He thought that was woman's suffrage with a vengeance!

Other creatures with many legs were the daddy-long-legs, earwig, scorpion, and centipede, or forty legs, which ate insects and had a bite almost as severe as the scorpion's sting.

The Insect Collection

Henry had seen the beautiful museum collections of insects in New York, but it took considerable experimenting before he and William could even begin one of their own. Instead of pins, they had to

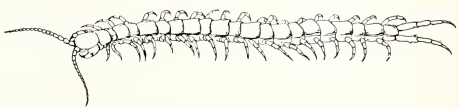


Fig. 63. The centipede; one half natural size.

use thorns, cactus spines, and bamboo fibers sharpened to a fine point. Instead of cork or peat, cornstalk pith, corkwood, and slices of the flowering stalks of yucca and agave were used.

As a substitute for glue, they gathered fresh pine resin, gum chicle, and cashew gum, the last being excellent because it dissolved in water and also kept the insect pests away. They had no naphthalene, but used Spanish cedar and red cedar wood to prevent insect attack, or bamboo sections with chips of camphor wood. For labels, thin strips of pine wood seemed to be the best.

They were careful to preserve only perfect specimens, with not even a foot gone or a scale ruffled.

Hard insects, like beetles, were mostly glued down to show both upper and under sides, while most other insects were stuck on thorns or fibers and fastened upright in the slices of pith.

Butterflies and moths had their wings spread so that the hind margins of the front wings made a straight line at right angles to the body. Duplicate and reserve specimens were carefully folded and packed between thin layers of bombax bark for spreading at some future time, after they had been softened by lying a few hours in a moist chamber.

The insect collection was like a munition factory; it was no place either for enemies or for careless friends. Cockroaches, ants, mice, the pet coon, and likewise Snowball and the monkey, were emphatically barred.

CHAPTER XXVII

Edna's Flower Gardens

Edna went into her work with flowers with as much enthusiasm as the boys displayed in building up their zoo. She soon found, however, that one

Fig. 64. A tree covered with air-plants.

FIG. 65. Vanilla vines in a shed at the U. S. Plant Introduction Field Station near Miami, Florida.

big flower bed would not do at all, because some plants loved the sun and others the shade, and some needed to be kept dry, while others loved the water.

While cutting down trees, Henry had taken special pains to get Edna a good collection of orchids and other air-plants, and these were now growing on

Fig. 66. The patio, or court, of a tropical house, with a fountain in the center, and showy plants and cages of singing birds.

the trees about the house and even on the walls of the house itself. He also made her boxes and hanging baskets for some of the prettiest kinds, which

she hung where she could see them best and enjoy their fragrance. Cattleyas, laelias, oncidiums, and many other rare and beautiful forms were her daily companions.

Vanilla vines climbed up the trunks of the cocoanut trees and the royal palm. The shape of the flowers showed that they were orchids, which surprised Edna. Their long pods are usually gathered

Fig. 67. A collection of desert plants at the New York Botanical Garden, with melon cacti and century plants in the foreground.

before they are quite ripe and cured in a special way to develop vanillin, the substance which gives the agreeable odor to the pods.

In a dry corner of the yard, fenced off from Snowball, Edna had her rocky bed of cacti, century plants,

and yuccas. These needed very little water, but they could not quite grow in the air like the orchids. The night-blooming cereus bore large, fragrant flowers that opened at night and attracted splendid moths; the Turk's-head cactus had a red cap somewhat

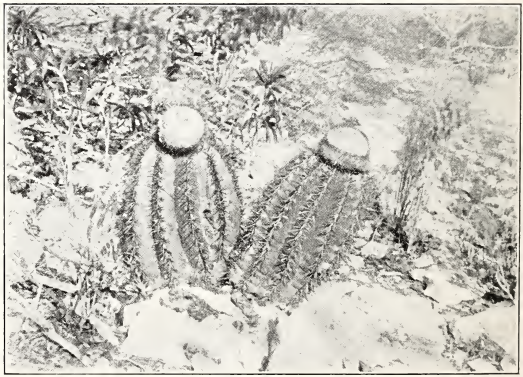


Fig. 68. The Turk's-head cactus.

like a Turkish fez; and there was a tall cactus with little red specks on it, which were really cochineal insects.

The milky euphorbia, or spurge, used for the

hedge around the yard, looked like a cactus but did not have cactus-like flowers.

The Spanish dagger, with its "shoe-string" leaves and tall cluster of flowers, seemed to Edna the same as the Spanish bayonet in her front yard at home. It is much planted for hedges, and the purple, bitter-sweet pulp of the fruit is often eaten.

Several kinds of century plants completed the bed. When they bloomed, they sent up wonder-

FIG. 69. A maguey plantation in Mexico. The young flower-stalks are cut out of the agave plants and the juice collected and made into pulque by fermentation.

ful, branched flower-clusters many feet high. No wonder it took them from five to twenty years to get ready to bloom. The thick leaves were full of

Fig. 70. An attractive tropical house covered with bignonia. The trees are eucalyptus, from Australia, now planted extensively in warm countries because of their exceedingly rapid growth.

long, thread-like fibers, which showed plainly when the leaves were scraped or began to decay.

Sisal, or henequen, so much used for ropes, twine,

fine hammocks, etc., is made from the leaves of a century plant extensively grown in Yucatan and other parts of tropical America. The ancient inhabitants of Yucatan dragged up the huge stones used for their pyramids with ropes made from this plant.

Edna next called upon the boys for posts, frames, and trellises for her climbing plants, which were easily made of bamboo and various woods, and she covered them with purple bougainvillaeas, yellow allamandas, orange bignonias, pink antigonums, and other interesting plants like cobaea, monstera, and philodendron. The balsam apple bore small spiny pods with red seeds; the sarsaparilla vine looked just like one of the catbriers in Virginia; and the gouania furnished good toothbrushes, or "chaw sticks," not so different from those sometimes made of dogwood in the eastern United States.

To cap the climax, the boys constructed a beautiful little summerhouse near one corner of the yard, and Edna covered it with white-flowered moon vines, scarlet-flowered cypress vines, blue and purple morning-glories, wild clematis, and dutchman's pipe. When she sat in this with her sewing on her lap, the familiar flowers made her feel very much at home. One vine came up, however, which was

FIG. 71. Flowers and fruits of the passion-flower vine.

strange to her. It was the seven-year vine, with flowers and pods like the common morning-glory but very much larger.

Of course, the monkey and Snowball had to have their summerhouse, too; so Edna planted the rose-

Fig. 72. Tropical flowers for President Palma.

colored granadilla, the bell-apple, and other passion-flowers about it, because they not only bore ornamental flowers, but also pretty and edible fruits.

Flowers were used to border the beds of vegetables in the garden. White, pink, and yellow atamasco lilies, the spider-lily, the red-flowered Barbados lily, crinums, and other species were planted in abundance. Also yellow cannas, roses, tuberoses, caladiums, alpinias, begonias, four o'clocks, liras, and castor-oil plants.

One of the handsomest plants was a tropical Jimson weed with immense flowers, commonly cultivated, while the ordinary Jimson weed of the United States grew wild. Other familiar weeds seen in the fields were the dandelion, some little blue speedwells, the curly dock, the shepherd's purse, the yellow wood-sorrel, and a large dodder, which sent its yellowish threads over the vegetation in large masses and lived parasitically.

Weeds that looked like some at home but showed slight differences were: a spiny cocklebur, two kinds of purple wood-sorrel, a skullcap, two species of ground-cherry, a mountain species of blackberry, a white milkweed, and numerous forms of "mistletoe" growing on the trees.

The Mexican poppy and the crotalaria were very attractive in the fields, one with red and the other with yellow flowers. The sensitive plant was common and would fold up its delicate leaves at the

slightest touch. A common cassia supplied seeds frequently sold as a substitute for coffee. The pretty little creeping fig and the life plant, which sprouts from the notches in its leaflets, were abundant everywhere in waste ground, on stones, and on tree trunks.

Thickets of bamboo, giant reed, and wild cane were found in open places in the forest and also in low grounds. A small clump of each, with one of pampas grass, was planted in the garden next to the bananas.

Shade-loving flowers were grown in the edge of the woods near the spring, while a pretty pool in the stream was selected for an aquatic garden and planted with cat-tails, rushes, yellow-flowered nelumbo, floating-heart, marsh pennywort, water hyacinth, morass weed, and white water-lilies. These were all found growing along the stream at various places, and the water hyacinth was sometimes too abundant.

Seaside plants could not be cultivated near the house because they required the salt, as well as the sand, for their happiness. Among them were the tassel plant; the bur-nut, with big yellow flowers and clinging burs; the glasswort, which loves mangrove swamps; the sea ox-eye; the seaside heliotrope,

having white flowers with a yellow eye; the shrubby sea lavender; and the seaside morning-glory, that trails across the sand for sixty feet or more.

When the flower gardens were all finished, Edna said, "I love the flowers and I love to work with them, but sometimes I feel like the old woman who lived in a shoe and had so many children she didn't know what to do."

"We know exactly how you feel," replied William, thinking of their animals, "but they are worth it."

"I'm glad you fenced in that cactus bed," added Edna, "or I would have had more sewing to do for Snowball."

CHAPTER XXVIII

Playtime

William made Snowball a swing in one of the mango trees, but he tried to do all the fancy tricks the monkey did and naturally came to grief. Fortunately, he landed on his head. In order to comfort him, Edna got some little round palm-nuts and bright-colored beans and played marbles with him, but the nuts would disappear every time they turned their backs. Henry then came to the rescue and dressed Snowball up like an African chief, with shield and spear and painted face, which pleased him immensely.

Edna sat in the summerhouse watching the boys running, jumping, climbing trees, throwing the lasso, pitching ball with oranges, and playing croquet with cocoanuts. It was amazing how they had improved physically. "If they ever get to college," she thought to herself, "they will certainly show the other fellows something. It will be like Tarzan of the Apes coming back to civilization."

"The monkey broke up the game," said William,

as the boys joined Edna in the summerhouse. He insisted on stealing our croquet balls."

"Well, it isn't much of a game, anyway, for people with muscle," remarked Henry. "What's that on the table, Edna?"

"That's a queer lichen I found in the woods yesterday. Do you know anything about lichens?"

"Only two things; that the reindeer lives on reindeer moss, which is not a moss but a lichen, and that the manna that the Children of Israel lived on in the Wilderness was a lichen that blew down from the hills during the night."

"You know more than I do about them."

"And I know a reindeer story, too. A Swedish servant applied for work at a service bureau in New York. 'Can you cook?' 'No.' 'Clean?' 'No.' 'Wash?' 'No.' 'Well, what can you do?' 'I can milk reindeer.' "

At this point, William interrupted. "And I know," he said, "that the ruby-throat hummingbird covers its little nest with lichens to make it look like a knot, and it nearly always uses the same kind of lichen. It seems to me a lot of unnecessary trouble, because I have hunted for days and never found but one hummingbird's nest."

"Lichens seem to me so different from other plants,"

said Edna. "They are so gray and stiff and grow on rocks and trees and other places where they get no water except when it rains. I don't know how they live unless they are like my resurrection fern, which curls up and rests in dry weather."

"Suppose we look out for lichens and bring some of the prettiest ones in for our collection," remarked Henry.

Mosses

From lichens, the conversation turned to mosses, which seemed to grow everywhere, but were so small that it was hard to notice many differences in them. Henry knew of packing plants and making surgical dressings with sphagnum, and putting mosses in the walls of houses in cold countries to keep them warm. William knew a moss with big hairy caps, and Edna had made playhouses of one that grew in pretty white tufts on the ground in woods.

"What I should like to know," said Henry, "is how to reconcile 'an old mossback' with 'a rolling stone gathers no moss.' They seem to me to contradict each other."

"Be that as it may," replied William, "I'd like to gather a few mosses, just for the fun of it."

On burnt ground, they found the common cord moss; on rocks and about ferns in marshy places,

the Florida syrrhopodon, the hair-like bryum, and Crueger's bryum; and on the moist walls of their cave near the entrance, the common tortula and the black-fruited gyroweisia. These were all small and erect like the cord moss.

They also found larger mosses in similar places that were branched and prostrate, sending up their little stalked fruit-bodies at intervals. Among these were the tomentose hairy-cap, the small-leaved haplocladium, and the glossy isopterygium.

Hepatics on trees and rocks, like Joor's leptoclea, the small-lobed lejunea, and the spreading frullania, were mistaken by the children for mosses not in fruit; while forms like marchantia and dumortiera, found on wet rocks and mud, were perfect puzzles to them.

"I think we may as well try the ocean next," remarked Henry. "Do you remember those beautiful seaweeds and the sea gardens? And I'll show you a trick I learned at Coney Island from a soldier who had been in the Philippines."

CHAPTER XXIX

Salt Water Collecting

The next day the boys invaded the ocean for some of its secrets not already cast upon the beach. They began with shells, because they were easiest, and, after they had brought in a large number of different kinds, they hunted snail shells on land to make the collection as complete as possible. Some of the live oysters contained pearls, which Edna prized highly.

"Just to think," she said," that the beautiful pearl is caused by a grain of sand or something else irritating to the delicate insides of the oyster, and it covers it up with mother-of-pearl like the inside of the shell to stop it from hurting."

"You might call them the oyster's tears," suggested William.

Henry showed them the Philippine trick of staying under water by holding a hollow reed in his mouth and breathing through it. This proved useful in studying the sea gardens and in collecting seaweeds, corals, and sponges, as well as shells.

Seaweeds

The seaweeds were green, brown, red, and various intermediate shades of color; while the different shapes were too numerous to mention. Some were delicate and feathery, such as gracilaria and the feather-like caulerpa; some were tough or leathery, such as the fan-like udotea, the goblet udotea, the three-toothed halimeda, and the honey-comb halimeda; and others were stony and looked like coral.

Most of the corallines had rather coarse branches, but one form, the fragile amphiroa, had thousands of needle-shaped branches arranged very close together like a bed of moss. Much of the land which was formerly supposed to be built up by coral polyps is really the work of these coral-like seaweeds.

Then there were other forms still more interesting on account of their peculiar shapes. The merman's shaving-brush and the sea-broom could not have been better named; while the mermaids should certainly be proud of the dainty little stalked cups, less than an inch across, that are known as mermaid's wine-glasses.

Fishes

Fishes were abundant, probably numbering six hundred kinds, and many of them of great beauty.

The hook, the gill-net, the bamboo trap, the torch at night, and work in the sea gardens gave the boys considerable knowledge of their appearance and habits of life. Some of them, like the flying fish

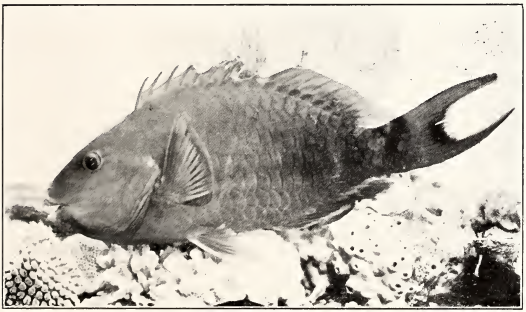


Fig. 73. The green parrot fish.

and the bat fish, even came out of the water and sailed away ahead of their canoe in full view.

The squirrel fish, the rock beauty, the angel fish, the parrot fish, and other brilliantly colored species attracted them by their beauty; the sea horse, the shell fish, the swell toad, and the porcupine fish were very curious; and the scorpion fish inflicted painful wounds with its spines.

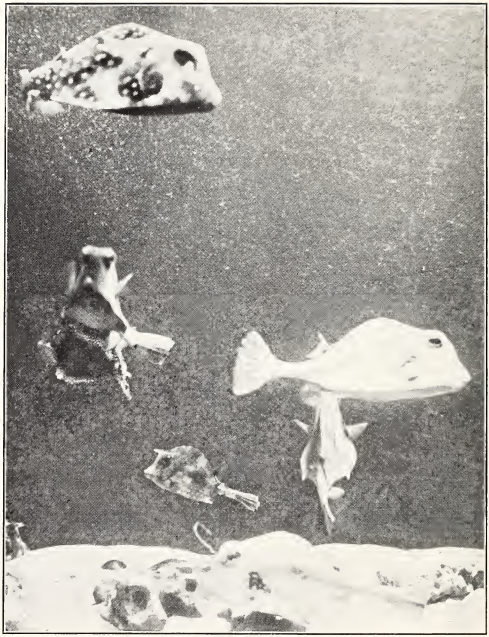


Fig. 74. Trunk fish.

Some of the fish were very large, among them the shark, the tarpon, the sea-wolf, the tunny, so well known in cans, the king fish, and the black moray eel, six feet long and strongly contrasted with the tiny worm eel no bigger than an earthworm.

Fig. 75. A red hind resting by a sea-fan on a bed of coral.

Other kinds worthy of mention were the lady fish, herring, sardine, lagarto, sheepshead minnow, top minnow, silver gar, hound fish, mullet, jack, yellow jack, goggle-eye, old wife, amber fish, horsehead, red hind, negro fish, chub, margate fish, grunt, pork

fish, mutton fish, schoolmaster, snapper, porgy, big-eye, goat fish, hog fish, pearl fish, pipe fish, turbot, and horn fish.

CHAPTER XXX

A Nugget of Gold

On the bank of the aquatic pool, Edna picked up a flat stone with the print of a shell upon it and brought it to the house. This started a hunt for fossils. It was not easy to find them, but still they existed, mostly in forms like clams, oysters, and snails.

One lucky day down in the gorge, they discovered what seemed to be an old cave filled up with drifted sand and clay, and in this were numbers of prints of leaves and other parts of plants, which were carefully removed and put with their collection of fossil shells.

While looking for fossils, the boys noticed that the rocks were not all the same; some were volcanic, some limestone, some conglomerate, some shaly, etc. So they took specimens of the different rocks and searched eagerly for more.

About this time, the water pipe became clogged up with sand and leaves and William was cleaning it out, when he stopped suddenly, held something up to the light, and started home on a run.

"Henry, take a look at this, will you?" he said breathlessly. "I found it in the water pipe."

Henry took the small, irregular lump in his hand and examined it carefully. "That's a gold nugget, William; I've seen some like it in the museum. You're a lucky boy!"

When Edna had seen the shining nugget and had properly expressed her congratulations, all three started off for the water pipe. In front of each partition in the bamboo, they found little nests of golden grains, which, being very heavy, had settled there as the sand was washed along.

It was an exciting, happy time for the young adventurers. They had been attracted by many things in their brief lives, but never before by the lure of yellow gold. Money meant so much to them if they could only get back home, and all of them expected to get back some time.

When they reached the end of the pipe in the garden, the sand simply glistened with shining grains, and they had passed there every day without seeing them! They scooped up the sand and carried it back three or four lengths of pipe and put it in the water so that the gold would be caught by the partitions as before.

Every few days after that, the pipe was examined

for gold dust and with the hope of finding more nuggets,—a proceeding entirely unintelligible to Snowball and the monkey. A week later, Edna discovered a precious gourd of ordinary sand under Snowball's bed, which he had evidently hidden away for gold.

CHAPTER XXXI

The Rescue Ship

"Our catbird has hurted his wing, Mother, and I'm 'fraid kitty will get him."

William's little sister Annie had found the cat-

Fig. 76. William's little sister Annie with her puppy.

bird in the yard at the old home in Virginia and her soft heart went out to the bird that had sung for them so many seasons.

Fig 77. William's mother had treasured in her heart the memory of that last evening before he sailed away on the fateful voyage.

Her mother took the injured bird and examined its wing to see if it was broken. Then she found the message.

"My darling boy is still alive!" she exclaimed.

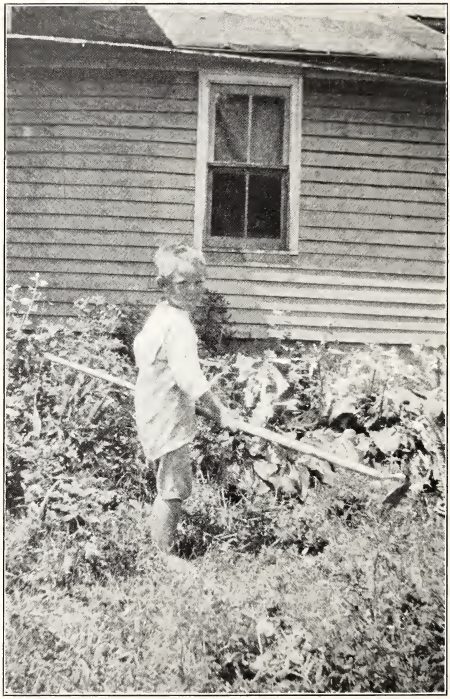


FIG. 78. Edna's little brother tried hard to keep the weeds out of her flowers while she was away.

The news spread like wildfire through the country. All the papers published in large type the message that the catbird brought.

The New York Academy of Sciences was just fitting out an exploring expedition and they undertook to rescue the children. A wealthy member loaned his yacht, a gentleman from the Museum of Natural History went, with his wife and three young assistants; and there were experts from the Aquarium and the Zoological Park and a botanist by the name of Wilson from the Botanical Garden.

Knowing the course of the wrecked ship and the date of her sinking, it was not difficult to locate the island; and, after cruising about the coast for some time, they finally sighted the flag of distress waving at the top of the bamboo pole.

"I had a dream last night," said Edna at the breakfast table. "I dreamed that one of our messages had been found and that a pretty white ship was coming for us. You know, ever since we found gold I have been anxious to get home and spend my share of it."

"I read in a book once," said William, "that money always makes people dissatisfied, but I don't believe it. I should be perfectly happy if I could spend my gold on a college education."

"The same here," said Henry. "If a man is ed-

ucated, he can always make money and he has the pleasure of knowing things besides. But, if we are going to have that picnic down on the beach

Fig. 79. A picnic in the wilds of Cuba.

this afternoon, don't you think we had better get to work?"

And so it happened that all the family were on the beach enjoying themselves when the white ship came in sight about five o'clock, just as they were thinking of going back home and having supper.

CHAPTER XXXII

Home Again

Wild yells of delight greeted the ship. The boys threw their hats into the air, Snowball stood on his head, and the monkey ran up the flagpole and tore the flag into a thousand pieces.

As the boat from the ship approached the shore, the boys went out in their canoe to meet it and led the way back to the landing. Greetings and introductions and scraps of news and anxious inquiries about friends were mingled in a perfect babel of voices.

The newcomers were wonderfully surprised at the house and its beautiful surroundings, and at the story of their life on the island for the three years past. Edna prepared a typical dinner of tropical foods, which was highly appreciated, and then they had some music under the torch light, with singing, in which everybody joined.

Next morning, the visitors were shown the museum, the animals, the birds, and the flower gardens, and they were simply astonished at what the children had accomplished. They decided to spend a

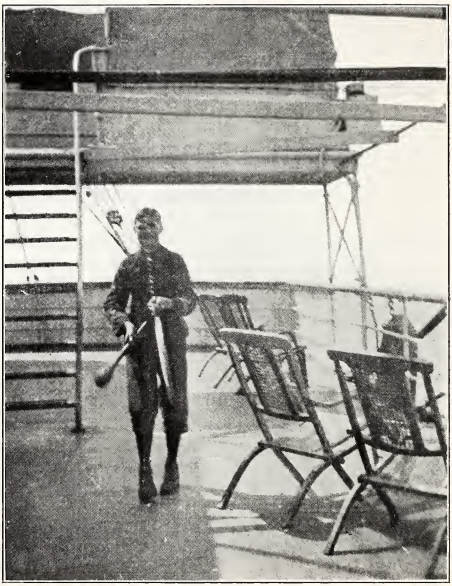


FIG. 80. Last call for dinner on the yacht.

week or more there and find out all they could about the wild life of the island with the aid of such able guides.

In the afternoon, all went aboard the yacht, where some civilized clothes were hunted up and a good dinner eaten. Snowball rejoiced in his first pair of trousers, which Edna adapted from an old pair belonging to one of the young assistants. The monkey imbibed too freely after the company left the table and fell overboard. When he was fished out, he seemed to have some weighty resolution on his mind.

The work of packing up, taking specimens of the flowers, making notes, collecting in the forest, and getting the bones out of the cave required considerable time, but the hours were very happily spent. Finally, all was ready for the homeward voyage. The three children went together to visit their favorite spots and bid them farewell; while Snowball and the monkey took a last look at the guava trees and the fishhook cactus.

The days flew swiftly by as the yacht sped toward New York, where all the specimens were safely landed and distributed among the various scientific institutions for study. Edna went with her birds to the Zoo and saw them safely housed, while the

others watched the unloading and transfer of the animals. When the monkey saw so many of his relatives behind the bars, he turned pale with fright and could not speak for several days.

Henry and William sold their gold and went to

FIG. 81. Henry and William during their senior year at college.

college, where they carried off high honors in science and athletics. The monkey lived with them and was the mascot of the football team, dressed in a

Fig. 82. Edna at her home in Virginia.

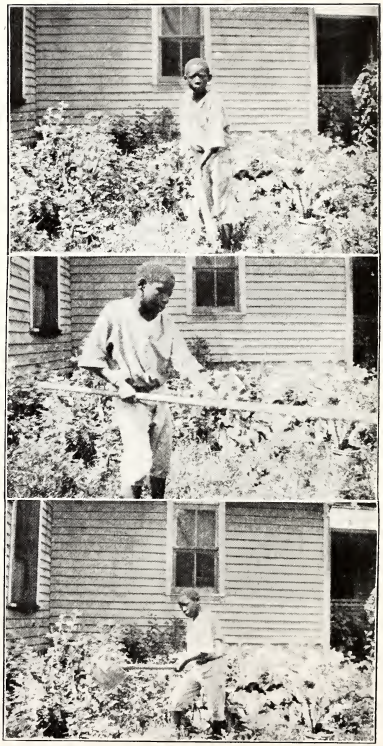


FIG. 83. Snowball working Edna's flowers.

red coat with high hat and cane. It may be incidentally mentioned that, since his experience at the first dinner on the yacht, he had been a perfect model in deportment in spite of frequent tempting offers from the college boys.

Snowball went home with Edna to Virginia and helped her work in her flower garden and later became her chauffeur. Henry and William and the monkey always came to see them during vacation.

When their college courses were finished, Henry became a Curator at the Museum of Natural History in New York and William a Professor of Natural History in one of the Virginia colleges. A few months after his appointment, William married Edna and took her to New York to spend the Christmas holidays, and Snowball went along to carry their hand baggage.

The New York Academy of Sciences was holding its annual banquet, at which reports of scientific work completed during the year were being read. High up among the distinguished guests at the head of the table, with Henry and William and Edna, sat Snowball and the monkey. Finally, the Chairman rose and said:

"*Ladies and Gentlemen:* I wish now to present an important piece of work, the results of which

are published in the large volume I hold in my hand. This work would not have been possible but for the untiring industry and keen insight into Nature possessed by the distinguished guests who have honored us with their presence this evening. [*Applause.*] The Academy has voted specially bound and signed copies of this publication, with a handsome gold medal to those before us who have thus advanced the cause of Science. [*Loud applause.*] I might also add that a new animal and a new tree have been named for the gentlemen of the party, a beautiful and fragrant new flower for the lady, a rapidly climbing plant for the monkey, and a new cactus for Snowball." [*Loud and prolonged applause, in which the monkey joined with enthusiasm and vigor!*]

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